



ANNUAL REPORT  
OF THE  
CITY ENGINEER  
OF  
TORONTO

FOR

1896



TORONTO :  
THE CARSWELL CO., LTD., CITY PRINTERS, 22-30 ADELAIDE STREET EAST.  
1897.





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Toronto Water Dept

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## WORKS.

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## WATER WORKS.

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# TORONTO

★ ★ ★ ★ ★

THE City of Toronto is situated upon the northern shore of Lake Ontario, about 40 miles easterly of its western terminus. It lies in latitude 43° 9' 10" north, longitude 79° 23' west, on a plateau gently ascending north for a distance of three miles, where an altitude of about 100 feet above the Lake level is reached. It extends about 10 miles along the Lake, and is generally level, with slight depressions at points where minor water courses formerly existed. The Don flows through the eastern part of the City, and the River Don runs immediately to the west of its western limit. The harbor is formed in front of the City by a sandy island that lies to the south, at a distance of about a mile and a half.

The area within the City limits, not including the Island or portions of City now covered by water, is 10,391 acres, or 16.2 square miles.

In this area there is a population of 220,000, by City Directory census.

There are 287 miles of streets, of which, including broken stone roadways, 177 miles are paved and 79.74 miles unpaved.

82½ miles of sewers.

228.52 miles of water mains.

430 miles of gas mains.

249,627 miles of water mains.

Annual revenue from Water Works, 1896, \$454,000. 7,000,000,000 gallons of water supplied annually.

225 miles of gas mains.

120 miles of overhead electric conduit.

4,288 miles of overhead electric wire.

80 miles of street railway track.

85.28 miles of street railway track.

The estimated value of property owned by the City is over 400,000.

Total assessed value of property in City, \$192,995,522.

Property in City exempt from taxation, value, \$22,158,516.

Value of buildings erected during 1896, \$1,346,810.





# —>: TORONTO :<—

★ ★ ★ ★ ★

THE City of Toronto is situated upon the northern shore of Lake Ontario, about 40 miles easterly of its western terminus. It lies in latitude 43° 39' 10" north, longitude 79° 23' west, on a plateau gently ascending north for a distance of three miles, where an altitude of about 220 feet above the Lake level is reached. It extends about eight miles along the Lake, and is generally level, with slight depressions at points where minor water courses formerly existed. The River Don flows through the eastern part of the City, and the River Humber immediately to the west of its western limit. The harbor is formed in front of the City by a sandy island that lies to the south, at a distance of about a mile and a half.

The area within the City limits, not including the Island or portions of City land covered by water, is 10,391 acres, or 16.2 square miles.

In this area there is a population of 220,000, by City Directory census.

There are 257.40 miles of streets, of which, including broken stone roadways, 177.9 miles are paved and 79.74 miles unpaved.

82 $\frac{1}{4}$  miles of lanes.

228.52 miles of sewers.

430 miles of sidewalks.

249.627 miles of water mains.

Annual revenue from Water Works, 1896, \$454,000. 7,000,000,000 gallons of water supplied annually.

225 miles of gas mains.

120 miles of underground electric conduit.

4,288 miles of overhead electric wire.

80 miles of steam railway track.

85.28 miles of street railway track.

The estimated value of property owned by the City is over \$8,400,000.

Total assessment of property in City, \$192,995,522.

Property in City exempt from taxation, value, \$22,158,516.

Value of buildings erected during 1896, \$1,346,810.



# ANNUAL REPORT

OF THE

# CITY ENGINEER

OF THE

## CITY OF TORONTO

### FOR THE YEAR 1896.

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CITY ENGINEER'S OFFICE,  
Toronto, December 31st, 1896.

*To His Worship the Mayor and Members of the Corporation of the  
City Council of Toronto:*

GENTLEMEN,—In compliance with By-law No. 2534, I have the honor to submit the Annual Report of this Department for the year 1896, containing statements of the various works carried out during the year, together with details of cost of construction.

#### OFFICIAL STAFF.

Owing to a falling off in the number and extent of the various public works of the City, the services of some of my assistants were dispensed with, and the Land Surveying and Plumbing Branches of the Department having been transferred to other branches of the City service, a re-arrangement of the Department became necessary.

The following is a list of the chief officials of the Department:

City Engineer and Chief Engineer Water Works .....	Edward H. Keating, M. Inst. C.E., M. Am. Soc. C.E.
Deputy City Engineer .....	C. H. Rust, M. Can. Soc. C.E.
Asst. Engineer, Sewers and Water Works ....	C. L. Fellowes, C.E.
Accountant .....	Wm. McCartney.
Chief Clerk Works Dept .....	E. P. Roden.
Secretary Committee on Works .....	A. H. Clarke.
Secretary to City Engineer .....	Geo. J. Castle.
Street Commissioner .....	John Jones.
Assistant Street Commissioner .....	Wm. J. Evans.

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Chief Engineer Main Pumping Station .....Robt. Pink.  
 Chief Engineer High Level Station .....Charles Heal.  
 Foreman of Construction Water Works .....Edward Foley.  
 Foreman in Charge of Machine Shop, Water  
     Works .....H. J. Orpen.  
 Foreman in Charge of Hydrants, Water Works.Wm. Black.  
 Storekeeper, Water Works Dept.....Thos. Skippon.

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## WATER WORKS REPORT.

For Water Works matters see separate report.

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## WORKS DEPARTMENT.

### FINANCIAL.

During the year the total expenditure of the Works Department, not including Water Works, was \$501,165.58, which was divided as follows :

General purpose .....	\$302,471 40
Special works .....	59,445 87
Street railway pavements .....	3,062 00
Local Improvements .....	111,742 40
Departmental and sundry accounts.....	24,443 91
Total .....	<u>\$501,165 58</u>

The amount for Local Improvements was divided as follows :

Pavements .....	\$75,919 89
Sewers.....	935 00
Sidewalks, wooden .....	12,635 41
Brick sidewalks .....	415 88
Concrete sidewalks.....	3,247 46
Bridges .....	18,588 76
Total .....	<u>\$111,742 40</u>

The amount expended in 1895 on similar work was \$143,381.87, showing a falling off of \$31,639.47 for the year.

The amount expended on sewer construction was the smallest for many years, owing to the fact that most of the streets within the City are now provided with drainage facilities, and those streets which are yet unprovided with sewers are only sparsely built upon.





JOHN STREET BRIDGE  
LOOKING EAST



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#### HYDRAULIC DREDGE.

The Council having appropriated the sum of \$18,000 for the construction of a hydraulic dredge, plans were prepared by the Department and the contract was awarded to Messrs. Medlar & Arnot, of this City; the total cost of the dredge, complete, was \$16,528.26. Owing to delay in procuring material the dredge was not completed until October, when it was sent to Ashbridge's Bay to deepen the channel between the bay and the lake. The dredge, having fulfilled the requirements of the contract, was accepted by the City in November. For further particulars, please refer to the report of the Deputy City Engineer, who had charge of the construction of the dredge.

#### ROSEDALE RAVINE DRIVE.

During the year this drive was graded and fenced, and was opened to the public. It extends from the River Don, at Winchester Street, to Yonge Street, a distance of 9,085 feet. While the opening of this drive is apparently much appreciated by the citizens, and it is largely used by all classes, a considerable sum of money will have to be expended upon the roadway to put it in proper condition.

#### PUBLIC LAVATORY ON ADELAIDE STREET.

The Council, through the efforts of Mr. Ald. Lamb, granted the sum of \$1,500 (which was increased by a donation of \$1,000 from Mr. James Wilson) for the construction of an underground public lavatory. After considerable trouble in selecting a site, one was finally chosen at the head of Toronto Street. The plans were prepared by Messrs. Strickland & Symons, Architects, who supervised the construction, and the lavatory was completed and opened to the public in October.

#### STONE CRUSHER.

A stone crusher, of a capacity of eleven cubic yards per hour, was purchased from Messrs. Copp Bros. Co., Ltd., of Hamilton, for the sum of \$700, and set up at the Frederick Street yard, an elevator and screens having been also provided for greater convenience in handling, raising and separating the stone.

#### ROADWAYS.

During the year there were 3.55 miles of new roadway pavements constructed, and 0.81 miles of permanently paved foot walks

These works were carried out under sixteen separate contracts, and of the roadways, nine were constructed by day labor. There were also ten private contracts for sidewalks carried out under the supervision of the Department, making a total of thirty-five separate works, divided as follows :

Asphalt .....	0.36 miles.
Brick on concrete.....	1.03 "
Cedar block on gravel.....	0.42 "
Cedar block on concrete.....	0.04 "
Macadam.....	1.66 "
Brick on gravel in track allowance.....	0.04 "
Concrete sidewalks .....	0.61 "
Brick sidewalks .....	0.20 "
Wooden sidewalks.....	8.48 "

It will be noticed that brick for street pavements seems to be growing in popular favor. In 1895 the first brick pavements on residential streets were laid, two having been laid in that year. In the past year, five were constructed. For further information in connection with pavements, I beg to refer to the report of the Deputy City Engineer.

#### SEWERS.

Only 1,600 feet of 9-in. and 260 feet of 12-in. pipe sewers have been constructed during the year. The attention of the Department has been devoted largely to the examination, reconstruction, repairing, cleaning and flushing of existing sewers, and the construction of manholes and gullies to facilitate future examinations and repairs and better disposal of water from the surface of the streets. The total length of sewers of all kinds in the City is 228.52 miles, and the length of sewers flushed and cleaned during the year was 123.6, at a total cost of \$2,764.81, or at the rate of \$22.36 per mile.

One hundred and seven new manholes and 295 new street gullies have been built, together with five flushing tanks and one ventilator.

In connection with the improvements to St. Lawrence Market, a new sewer was constructed and drains laid to the various butchers' stalls.





YORK STREET BRIDGE  
LOOKING EAST



## PRIVATE DRAINS.

During the year, 243 private drains were constructed and 39 repaired by the Department, requiring the laying of 6,350 feet of 6-in. drain pipes, 292 feet of 9-in. and 33 feet of 12-in. pipe.

## BRIDGES.

## JOHN STREET BRIDGE.

Under the Esplanade Agreement the G. T. Ry. Co. was called upon to erect a highway bridge across the railway tracks at the south end of John Street, and the C. P. Railway to build a bridge across the tracks at York Street. The plans for the John Street bridge over the property of the G. T. R. were prepared by Mr. Hannaford, Chief Engineer of that Company, and approved by this Department. This portion of the bridge from the south side of Front Street to the southern limit of the Esplanade consists of four through spans, two of 100 feet each and two of 140 feet each. The plans for the southerly portion of the bridge over the tracks of the C. P. R., were prepared by Mr. Peterson, Chief Engineer of the C. P. R. Co. The northern span is level and 150 feet from centre to centre of piers. The southern span is built on a grade of 1 in 20, and is 108 feet from centre to centre. The bridge is built on stone piers, with the exception of that between the two spans built by the C. P. R., which is to be of steel with stone foundations. The southern approach to this bridge will be composed of an earth ramp running southerly to the north side of Lake Street for a length of about 240 feet. The total length of the bridge when completed will be 938 feet, and the ramp 240 feet, making a total distance of 1,178 feet from Front Street to Lake Street. The width of roadway between trusses is 30 feet, with a sidewalk on each side of  $6\frac{1}{2}$  feet clear. That portion of the bridge over the G. T. R. property was finished late in the season, and it is expected that the whole bridge will be completed and open for traffic early in 1897. The ironwork for this bridge is being constructed by the Dominion Bridge Co., of Lachine, and the masonry was built by the G. T. and C. P. Ry. Companies.

YORK STREET BRIDGE.—The York Street bridge is now under construction, and will, I trust, be completed and opened to the public early in 1897. The plans for this bridge were prepared by Mr. P. A. Peterson, Chief Engineer of the C. P. Ry. Co., and, after some alterations, were approved by me, and work was commenced in the spring

of this year. The piling for the piers and abutments was done by the Railway Company, the contract for masonry was awarded to the Owen Sound Stone Co. The iron and steel work is to be furnished by the Central Bridge Co., of Peterboro. The Bridge Company commenced erection on the 23rd of October. The total length of the bridge, including east and west approaches, is 1,580 ft. The masonry approach at the Front Street end is 85 feet 10½ inches, and those at the Lake Street end 115 feet each. There are 35 intermediate spans, varying from 13 feet 2 inches to 70 feet, with a width of roadway of 37 feet 6 inches, and a sidewalk on each side 7½ feet clear. The sidewalks are of 2-in. tamarack planks and the roadway is formed of 8-in. x 4-in. x 4½-in. rectangular pine blocks laid on 4-in. planks, creosoted.

Bridge.	When built.	Class.	Foundation.	Total Length.	No. of Spans.	Span.		Width of Roadway.	Sidewalk.		Deck or Water.
						Ft.	In.		No.	Width.	
				Ft. In.		Ft.	In.	Ft. In.		Ft. In.	Ft. In.
Queen Street east, over Don .....	1879	Through b'dge, st'l combina'n	Masonry .....	144 0	1	.....	138 0	20 0	2	4 3	14 10
Glen Road .....	1877	Steel trestle deck bridge....	" .....	393 0	11	.....	33 0	16 10	2	4 6	68 6
Huntley Street .....	1884	" .....	" .....	439 0	13	.....	7 32 0	17 6	2	6 0	60 0
				.....		.....	6 30 0	.....			
				.....		.....	1 230 0	.....			
Gerrard Street .....	1889	Steel through and deck .....	" .....	420 0	13	.....	2 23 0	27 0	2	6 6	33 0
				.....		.....	4 26 0	.....		&	
				.....		.....	6 25 0	.....		7 9	25 0
Sherbourne Street .....	1890	Steel trestle deck bridge....	" .....	493 0	15	.....	12 30 0	30 0	2	6 0	78 0
Carlaw Avenue .....	1890	Plate girder carrying G. T. R	" .....	74 0	1	.....	2 20 0	.....		None.	13 0
				.....		.....	1 42 0	.....			
Dundas St., over G.T.R. and C.P.R..	1893	Warren g'd'r s'l thro'h b'dge.	" .....	346 8	4	.....	1 104 2	30 0	2	7 0	26 0
				.....		.....	1 93 0	.....			
				.....		.....	1 62 0	.....			
Dundas St., over G.T.R. (Northern).	1893	" .....	" .....	90 0	1	.....	1 80 6	30 0	2	7 0	26 0
Island Park .....	1895	Steel and cast iron arch bridge	" .....	150 0	3	.....	83 0	.....			
Cherry Street .....	1897	Steel swing .....	Crib'g & piling.	126 0	1	.....	1 60 0	22 0	.....	None.	14 3
Cattle Market .....	1893	Steel lattice .....	Masonry .....	160 0	2	.....	2 30 0	15 0	.....	None.	8 6
				.....		.....	1 190 0	.....			
				.....		.....	1 60 0	16 0	1	4 0	25 0
* York Street .....	1897	Steel deck bridge .....	" .....	1,193 0	33	.....	13 2	37 6	2	7 6	29 6
				.....		.....	.....	.....			
				.....		.....	to	.....			
				.....		.....	70 0	.....			
† John Street .....	1897	Steel through bridge .....	" .....	738 0	6	.....	2 100 0	30 0	2	6 6	25 6
				.....		.....	2 140 0	.....			
				.....		.....	1 150 0	.....			
King Street Subway .....	1889	Steel deck .....	" .....	740 0	.....	.....	1 108 0	.....			
				.....		.....	2 33 0	Railway		Tracks.	19 0

\* Under construction by C.P.R., City paying half the cost.

† Southern portion under construction by C.P.R., northern portion built by G.T.R.



## LIST OF WOODEN BRIDGES.

Bridge.	When built.	Class.	Foundation.	Total Length.	No. of spans.	Span.		Width of Roadway.	Sidewalk.		Deck to Ground or Water.
							Ft. In.		No.	Ft. In.	
Arthur Street .....	1884	Wood trestle .....	Wooden posts ..	198 0	9	.....	22 0	18 6	2	4 6	30 0
Crawford Street .....	1884	" .....	" ..	308 0	14	.....	22 0	19 0	2	4 6	31 6
Shaw Street, near Arthur .....	1884	" .....	" ..	154 0	7	.....	22 0	19 3	{ 1 4 0 }	{ 4 6 }	30 0
Shaw Street, near College .....	1885	" .....	" ..	354 0	16	14	22 0	19 10	2	4 6	31 6
Humber Bridge .....	1883	Howe Truss, wood .....	Cribbing .....	198 6	3	1 50 0	63 6	18 0	.....	None.	16 0
Strachan Avenue, over G. T. Ry .....	1878	Queen Truss, wood .....	Wooden bents ..	112 0	6	1 17 0	13 0	20 6	2	6 0	19 3
Strachan Avenue, over C. P. Ry .....	1878	Queen Truss, wood .....	Wooden bents ..	117 0	5	2 23 0	20 0	20 6	2	6 0	19 3
Eastern Avenue .....	1889	Howe Truss, wood .....	Piling .....	136 0	1	1 31 0	31 0	19 0	2	5 9	16 4
Winchester Street .....	1891	Queen Truss, wood .....	Crib'g & piling ..	158 0	3	1 54 0	52 0	18 2	1	5 6	17 7
Binscarth Avenue .....	1894	Deck Bridge, wood .....	Wooden bents ..	61 0	3	2 23 0	23 0	16 8	.....	None.	20 0
Castle Frank .....	1896	Deck Bridge .....	Wooden bents ..	173 4	11	1 15 0	15 0	17 0	1	3 6	14 6
Riverdale Park .....	1896	Through Truss Bridge, wood ..	Piling .....	129 0	1	3 16 1	16 1	8 0	.....	None.	14 1
Hanlan's Point to Turner's Baths .....	1885	Queen Truss, wood .....	Cribbing .....	560 0	13	1 25 0	25 0	8 0	.....	None.	5 6





YORK STREET BRIDGE  
LOOKING WEST



---

The usual repairs have been made to the different bridges throughout the City.

A new wooden bridge for pedestrians (125 feet span by 8 feet wide in the clear) has been constructed across the River Don, between the Gerrard and Winchester Street bridges, to provide access from Riverdale Park to the proposed new park on the east side of the river. The contract was awarded to Mr. Hambly, and the total cost was \$815.

Plans were also prepared for a swing bridge at the Queen's Wharf in connection with the proposed railway to Toronto Island, and plans were also prepared for a swing bridge at the foot of Cherry Street.

#### STREET COMMISSIONER'S DEPARTMENT.

The work carried out under the direction of the Street Commissioner comprises the construction and repair of wooden sidewalks and keeping in repair macadam, cedar block and unimproved roadways, besides cleaning street gullies, street cleaning, street watering and scavenging. This work is all done on the day labor system. For full information concerning the work undertaken by this Department, I beg to refer to the report of Mr. Jones, the Street Commissioner, appended hereto.

Respectfully submitted,

E. H. KEATING,  
*City Engineer.*

# REPORT OF THE DEPUTY CITY ENGINEER.

CITY ENGINEER'S DEPT.,

Toronto, December 31st, 1896.

E. H. KEATING, ESQ.,

*City Engineer.*

DEAR SIR,—I beg to submit a report of works coming under my charge during the past year.

## HYDRAULIC DREDGE.

The Council granted an appropriation of \$18,000 for the construction of a hydraulic dredge. Acting under your instructions I prepared the plans, and the work was awarded to Messrs. Medlar & Arnot, of this City. The contract called for the "construction of a dredge capable of excavating any ordinary material, such as sand, clay, gravel, earth or mud to a depth of 16 feet, and to be capable of delivering the same a distance of 900 feet; the capacity of dredge in excavated material to be from 5 to 30 per cent. of the quantity of water pumped, depending upon the character of the material and other conditions. The dredge to be fitted complete with all the necessary machinery for manipulating the same and feeding the cutter head continuously and uniformly over the bottom. The dredge to be capable of making a cut of 100 feet in width at one time." The hull is 90 feet long, 28 feet wide and 6 feet deep, with two bulk heads the entire length. The cutter frame is constructed of steel, and the dredge is also fitted with a rotary steel cutter head, consisting of a conical steel casting to which ten cast-steel plates are securely bolted, forming a cutter head of about 48 inches diameter at the base, 30 inches at the outer end and 36 inches long. The cutter head is carried on a steel shaft 5 inches in diameter. A pair of duplex hoisting engines, 8 x 12, with three drums with the necessary attachments, are placed on the forward deck for the purpose of driving the cutter head, hoisting and lowering the cutter frame and operating the swinging lines. The dredging pump is of the 12-in. centrifugal type, constructed especially for dredging purposes.



CITY BREWERY THE DANIEL LANE

Nov 10-96

BRUCE  
PARK  
NEWARK







The engines called for in the contract were to be of the horizontal compound type 10 x 20 x 14 in. stroke, and to be of ample proportions for high speed and continuous running; the engines designed to run at a speed of from 170 to 200 revolutions; indicated horse power from 75 to 125. The specifications for these engines were slightly varied, those actually constructed having cylinders 10 x 17 x 15 in. stroke. The boiler is of the locomotive type, 72 in. diameter, 22 ft. long, having 130 tubes 3 in. diameter, 15 ft. long. An air pump condenser 6 x 10 x 12 in., one duplex feeder pump with cylinders  $5\frac{1}{4}$  x  $3\frac{1}{2}$  x 6 in. stroke was also furnished. At the stern of the dredge two spuds for holding the dredge in position and feeding it ahead were provided. These spuds are of oak, 12 x 12 in. x 30 ft. long. The contract called for them to be operated by steam cylinders, but this was slightly altered, one horizontal cylinder for feeding the dredge ahead by means of the stepping spud being constructed, the hoisting being done by means of drums placed upon the lower deck immediately under the forward engine, being worked by a sprocket chain and two steel cables carried over the deck-house to the stern of the dredge. I forward detail plans and photographs showing the dredge. The hull was launched in August, and the machinery, which, with the exception of the boiler, was constructed by the Skinner Engine Co., of Erie, Pa., was placed in position and operations commenced in October. The dredge was christened the "Daniel Lamb," after the Chairman of the Board of Works for 1895, who had been instrumental in having the necessary appropriation placed in the *Estimatés*, and had taken a great deal of interest in its construction.

The dredge was tested and finally accepted and taken off the contractors' hands in November. Owing to the lateness of the season the only work done consisted in deepening the channel from Ash-bridge's Bay to the Lake.

#### ISLAND RAILWAY.

Surveys and estimates were also prepared for an electric railway for the Island.

#### BRIDGES.

During the past year the only new work in bridge construction which came under my charge was the foot bridge constructed across the Don, between Winchester St. and Gerrard St., to give convenient

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means of access to that portion of Riverdale Park lying on the east bank of the Don. The contract was awarded to Mr. Hambly, the total cost being \$815. The contract called for the construction of a through bridge, with a width of 8 feet and length of 125 feet.

There was also a small rustic bridge constructed for foot passengers in the new park on the line of the Rosedale Ravine, at Yonge Street.

The following repairs were made :

Eastern Avenue bridge, new floor laid.

Queen Street bridge, a new floor constructed.

Gerrard Street bridge was raised and iron blocks placed under the legs. The sway braces were also tightened.

The Dundas Street bridge was repainted.

Shaw Street bridge had slight repairs made to it.

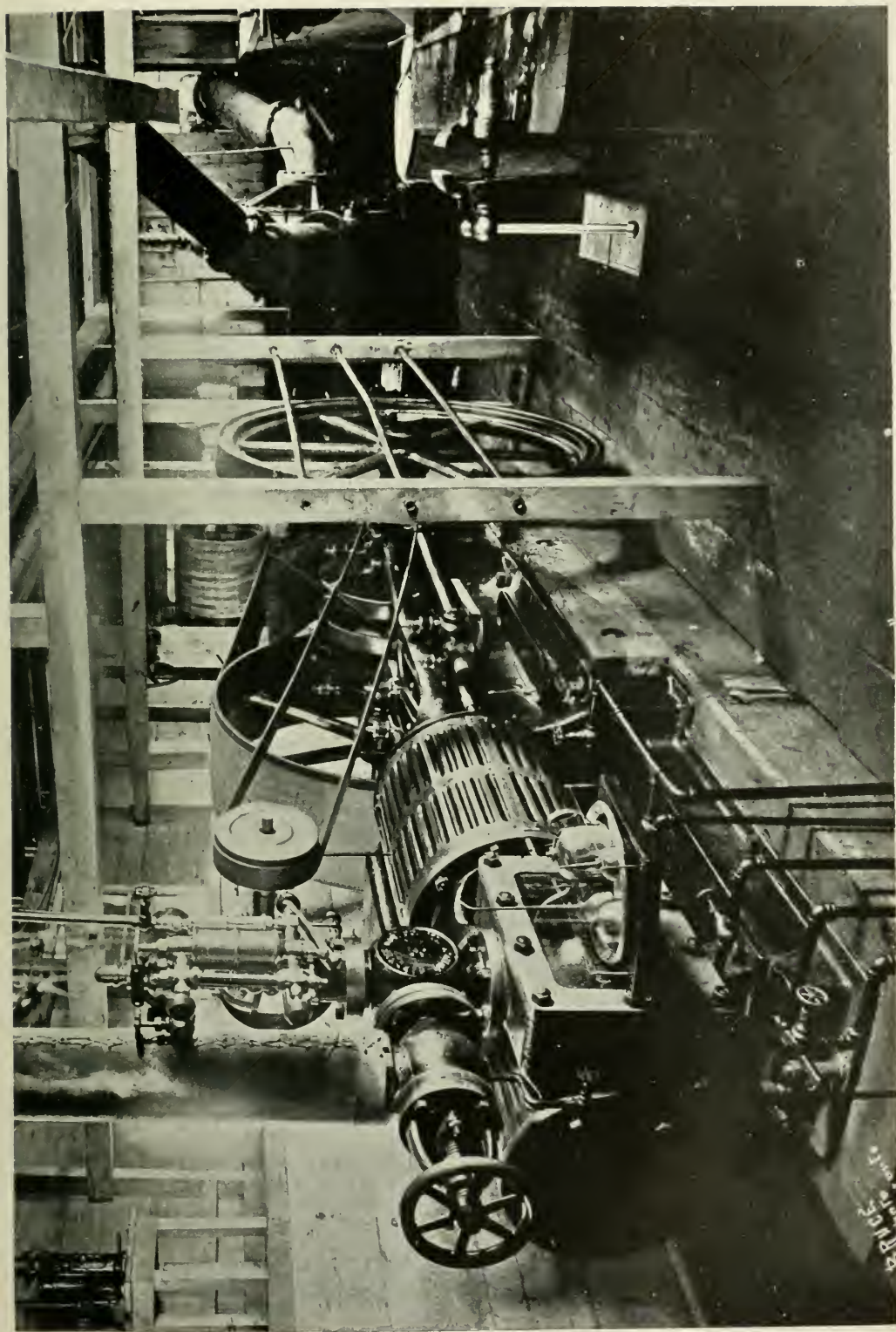
Strachan Avenue bridge had new trusses and hand rails constructed and the sidewalk repaired.

#### ROADWAYS.

The following report shows in detail the various works constructed, supervised and recommended by the Roadway branch of the Department during the year 1896, together with such other information as may be of interest.

The amount of work actually constructed was smaller than that of previous years, being 3.553 miles of new pavement for carriage ways and 0.816 miles of permanently paved footways, the laying of which entailed the letting of sixteen contracts, besides two which were carried over from 1895.

In addition to the works by contract, there were nine by day labor, and ten private contracts were superintended, making a total of thirty-five separate works, which are classified in the following table :



ENGINE ROOM CITY DREDGE "DANIEL LAMB"



TABLE No. 1.

<i>Class of Pavement.</i>	<i>No. of Works.</i>
Macadam.....	5
Brick on concrete.....	6
Brick on gravel.....	1
Asphalt.....	3
Cedar on gravel.....	1
Cedar on concrete.....	1
Cedar on gravel with brick on concrete between the tracks.	1
Concrete sidewalks.....	5
Brick sidewalks.....	2
Private contracts.....	10
Total.....	35

In connection with the above and with works which were proposed but not carried out, there were 67 plans and 262 estimates made.



TABLE No. 2.  
MILEAGE OF DIFFERENT CLASSES OF PAVEMENTS AND SIDEWALKS LAID  
FROM 1890 TO 1896.

*Pavements.*

Class of Pavement.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Asphalt .....	1.73	1.635	6.216	5.607	3.067	1.156	0.366
Cedar block on sand and plank foundation .....	15.51	9.186	3.349	3.249	0.852	1.753	0.428
Macadam .....		0.123	0.494	.....	0.059	1.663	1.661
Cobble .....	0.10	0.069	0.366	.....	.....	.....	.....
Tamarac on concrete .....	0.192	0.077	.....	.....	.....	.....	.....
Cedar block on concrete .....	.....	.....	8.416	2.185	0.826	0.227	0.038
Stone setts on concrete .....	.....	.....	6.705	3.743	2.563	0.085	.....
Scoria block on concrete .....	0.138	.....	0.028	.....	.....	0.117	.....
Brick on concrete .....	.....	.....	.....	3.964	0.787	0.744	1.032
Brick on gravel .....	.....	.....	.....	.....	.....	.....	0.028
Concrete pavements in lanes ..	.....	.....	.....	.....	.....	0.071	.....
Total of pavements .....	17.670	11.090	19.574	18.748	8.154	5.816	3.553
<i>Sidewalks.</i>							
Concrete .....	1.426	1.930	1.508	2.259	1.137	1.918	0.612
Stone flag .....	1.273	0.398	0.104	0.035	0.011	.....	.....
Brick .....	.....	.....	.....	.....	.....	.....	0.204
Total of sidewalks .....	2.699	2.328	1.612	2.294	1.148	1.918	0.816

The first pavements put down on the local improvement system were laid during the year 1881, and the following table shows the annual variation in the mileage of paved and unpaved streets, with classification of the same until the end of the year 1896 :





INTERIOR OF UNDERGROUND LAVATORY, COR. ADELAIDE AND TORONTO STS.





TABLE No. 4.

SHOWING PERCENTAGES OF DIFFERENT CLASSES OF PAVEMENT IN THE CITY.

Cedar block .....	42.23	per cent.
Stone and scoria .....	.31	"
Asphalt... ..	5.67	"
Wood on concrete .....	.21	"
Macadam .....	15.43	"
Unpaved .....	30.98	"
Cedar block with asphalt between tracks .....	2.47	"
Cedar block with brick between tracks .....	1.92	"
Macadam with stone setts between tracks ....	.27	"
Brick on concrete .....	.51	"
	100.00	"

Total .....257.40 miles.

## ASPHALT PAVEMENTS.

The amount of asphalt pavement laid during the past year was very small, there being only three contracts and two of those were for lanes, with the narrow space of ten feet between curbs. The price tendered for the work was low in every case, even for the Brunswick Avenue pavement, which, by the terms of the contract, is guaranteed and to be kept in repair by the contractor for ten years. A detailed statement of prices, etc., will be found in table No. 7.

Concrete gutters fourteen inches wide and of the same depth as the pavement, were laid next to the curb, as the gutter seems to be one of the first places where an asphalt pavement requires repairing, although there is obviously very little wear on it caused by vehicular traffic, the damage being almost entirely due to water lying there and disintegrating the asphalt. On Bloor Street East, which was paved in 1890, it was found necessary to repair a great deal of the gutter this past summer, and concrete was substituted as more suitable than asphalt, especially as the grade on this street is very flat.

The guarantees by the contractors having expired on the pavements on several streets, and as most of them required repairing, tenders were advertised for and a contract let last spring for asphalt repairs. The tendered price for two and one-half inch asphalt surface was \$1.99 per square yard; that for two-inch surface, \$1.70 per square yard. The total expenditure for repairs during the year was \$1,998.76. The following Table No. 5 shows the streets paved with asphalt upon which the contractors' guarantees have expired:

TABLE No. 5.

SHOWING STREETS PAVED WITH ASPHALT UPON WHICH THE CONTRACTORS' GUARANTEES  
HAVE EXPIRED.

Street.	From	To	Length.	Date of Expiry of Guarantee.
			Feet.	
Bay .....	King .....	Front .....	932	November 20th, 1893
Jarvis .....	Queen .....	Bloor .....	6,734	October 1st, 1894
St. George .....	Bloor .....	Bernard .....	2,025	October 9th, 1894
Wellington .....	Church .....	Yonge .....	900	June 28th, 1894
Sherbourne .....	Queen .....	Bloor .....	6,786	June 1st, 1895
Simcoe .....	King .....	Queen .....	1,182	August 1st, 1895
St. George .....	Bernard .....	Dupont .....	966	June 14th, 1895
Ontario .....	Carlton .....	Howard .....	2,824	July 28th, 1895
Sherbourne .....	King .....	Queen .....	1,160	July 2nd, 1895
Bloor .....	Yonge .....	Sherbourne .....	2,661	November 18th, 1895
Scott .....	Front .....	Colborne .....	374	November 7th, 1895
Wellington .....	Bay .....	York .....	848	July 18th, 1895
Gerrard .....	Jarvis .....	Sherbourne .....	934	July 24th, 1896
Melinda .....	Yonge .....	Bay .....	587	August 5th, 1896
Jordan .....	Wellington .....	King .....	379	August 5th, 1896
Sherbourne .....	The Bridge .....	South Drive .....	1,076	November 11th, 1896
Bay .....	King .....	Queen .....	1,175	August 15th, 1896
St. George .....	College .....	Bloor .....	3,286	September 25th, 1896
Total lineal feet. ....			34,829	
Miles .....			6.596	

## CEDAR BLOCK PAVEMENTS.

The demand for cedar block pavements is continually decreasing. Only three were laid during the year, one of which (Yorkville Avenue) was a renewal of the surface with the addition of two inches of gravel to the old bed to bring it up to the required grade. The cedar pavement on Simcoe Street, between Front Street and Station Street, was laid on a six-inch concrete foundation, with stone curbs, the residents objecting to a granite sett pavement which was previously recommended, on account of the noise, and the grade was considered rather steep for asphalt.

A great many of the cedar block roadways in the City are in a deplorably dangerous condition, and although sixty-four new pavements have been recommended this year, they have, with a few exceptions, been petitioned against by the ratepayers.

The following Table No. 6 shows the streets on which the local improvement rates for cedar pavements have expired, or will expire during the ensuing year:



TABLE No 6.

Street.	From	To	Present Pavement	Date When Laid.	Date Assessm't Expires.
Abbs .....	Brock Ave. ....	West Term. ....	C. B. ....	1891	1896
Adelaide .....	Yonge .....	York .....	" .....	1887	1897
Afton .....	Northcote .....	Lisgar .....	" .....	1883	1894
Alexander .....	Church .....	N. Mutual .....	" .....	1884	1894
Allan Ave. ....	Broadview Ave. ....	Bolton Ave. ....	" .....	1887	1897
Alma Ave. ....	Gladstone Ave. ..	Dufferin .....	" .....	1887	1897
Argyle .....	Dundas .....	Givens .....	" .....	1887	1897
Argyle .....	Givens .....	Shaw .....	" .....	1887	1897
Arthur .....	Bathurst .....	Euclid .....	" .....	1882	1892
Arthur .....	Dundas .....	The Bridge .....	" .....	1884	1895
Arthur .....	Euclid Ave .....	The Bridge .....	" .....	1886	1897
Augusta .....	Nassau .....	College .....	" .....	1886	1896
Avenue Pl. ....	Avenue Rd. ....	Hazelton Ave. ....	" .....	1887	1897
Baldwin .....	Beverley .....	McCaul .....	" .....	1884	1895
Balmuto .....	Bloor .....	Czar .....	" .....	1884	1895
Barton Ave .....	Palmerston Ave. ....	Euclid Ave. ....	" .....	1892	1897
Bathurst .....	Niagara .....	N. Railway gate. ..	" .....	1886	1897
Bathurst .....	College .....	Bloor .....	" .....	1884	1895
Bay .....	Esplanade .....	Front .....	Tam. ....	1891	1897
Beaconsfield .....	Queen .....	Afton .....	C. B. ....	1882	1892
Bellevue .....	College .....	Bellevue Pl. ....	" .....	1882	1892
Belmont .....	Yonge .....	Davenport Rd. ....	" .....	1887	1897
Bellevue Pl. ....	Carlyle .....	Augusta .....	" .....	1884	1896
Bellwoods .....	Queen .....	Mansfield .....	" .....	1883	1892
Berkeley .....	Gerrard .....	Carlton .....	" .....	1882	1891
Berkeley .....	Wilton .....	Gerrard .....	" .....	1883	1892
Bernard Ave. ....	Avenue Rd. ....	Bedford Rd. ....	" .....	1887	1897
Berryman .....	Davenport Rd. ....	Hazelton Ave. ....	" .....	Yorkville	1897
Bishop .....	Davenport Rd. ....	West Term. ....	" .....	1886	1896
Bismark Ave. ....	Yonge .....	Gwynne .....	Mac. ....	1891	1897
Bismark Ave. ....	Gwynne .....	East End .....	C. B. ....	1891	1897
Booth .....	Queen .....	Eastern .....	" .....	1891	1896
Bolton .....	Queen .....	Gerrard .....	" .....	1886	1896
Borden .....	College .....	Bloor .....	" .....	1886	1897
Boswell .....	Avenue Rd. ....	West Term. ....	" .....	1886	1897
Broadview Ave. ....	Queen .....	Gerrard .....	" .....	1887	1897
Brooklyn Ave ..	Queen .....	North End .....	" .....	1887	1897
Brock Ave. ....	Florence .....	Dundas .....	" .....	1887	1897
Brock Ave. ....	Queen .....	Railway .....	" .....	Parkdale	1896
Brown .....	Brock .....	West Term. ....	" .....	1891	1896
Broadview Ave. ....	Gerrard .....	Withrow Ave. ....	" .....	1887	1897
Broadview Ave. ....	Queen .....	Eastern Ave. ....	" .....	1891	1896
Brookfield .....	Queen .....	Maple .....	" .....	1882	1892
Brock .....	Dundas .....	College .....	" .....	1888	1895
Brunswick .....	College .....	Ulster .....	" .....	1882	1892
Brunswick .....	Ulster .....	Bloor .....	" .....	1884	1895
Bruce .....	Shaw .....	Givens .....	" .....	1892	1897
Buchanan .....	Yonge .....	Teraulay .....	" .....	1883	1892
Cameron Pl. ....	Cameron .....	Vanauley .....	" .....	1883	1894
Cameron .....	Queen .....	Bend .....	" .....	1883	1892
Carlton .....	Sackville .....	Sumach .....	" .....	1885	1896
Carlton .....	Sherbourne .....	Parliament .....	" .....	1886	1896



Street.	From	To	Present Pavement.	Date When Laid.	Date of Expiry.
Carlton .....	Parliament .....	Sackville .....	C. B.....	1884	1896
Carlton .....	Yonge .....	Sherbourne .....	" .....	1886	1897
Carlton Ave.....	Ontario .....	Easterly .....	" .....	1883	1892
Carlton .....	Sumach .....	East End .....	" .....	1886	1897
Carlaw Ave .....	Eastern .....	The Bay .....	" .....	1885	1897
Carlaw Ave .....	Eastern .....	South End.....	" .....	1885	1897
Carlyle .....	St. Patrick .....	Bellevue Pl.....	" .....	1886	1896
Cawthra Sq .....	Jarvis .....	West End .....	" .....	1891	1897
Charles .....	Church .....	Jarvis .....	" .....	1883	1892
Church .....	King .....	Gerrard .....	" .....	1886	1897
Church .....	King .....	Front .....	C. B. & S S.	1887	1897
Church .....	Gerrard .....	Bloor .....	CB & SS	1887	1897
Churchill .....	Dovercourt Rd..	East End .....	C. B.....	1887	1897
Clarence .....	Wellington .....	North End.....	" .....	1886	1897
Clarence Sq.....	.....	.....	" .....	1883	1894
Clara .....	Oak .....	Orford.....	" .....	1886	1896
Claremont.....	Robinson .....	Mansfield .....	" .....	1887	1897
Classic Pl .....	Huron .....	East Term.....	" .....	1886	1897
Classic Ave .....	Spadina .....	Huron .....	" .....	1886	1897
Clinton .....	473 ft. s. of Bloor	891 ft. s. of Bloor	" .....	1891	1897
Clifford .....	Stafford .....	Strachan .....	" .....	1887	1897
Close .....	Queen .....	Railway .....	" .....	Parkdale	1897
Clyde .....	Spadina .....	Augusta .....	" .....	1887	1897
College .....	Dufferin.....	Lansdowne.....	" .....	1888	1896
College .....	Beverley .....	Spadina .....	" .....	1882	1892
College .....	McCaul .....	Beverley .....	" .....	1883	laid by City
College .....	Spadina .....	Bathurst.....	" .....	1884	1894
College .....	McCaul .....	Yonge .....	" .....	1885	laid by City
College .....	Ossington .....	Dufferin .....	C. B. & Cobble.	1887	1897
College .....	Ossington .....	Bathurst.....	C. B. & Cobble.	1887	1897
Colborne .....	West Market....	Yonge .....	C. B.....	1884	1897
Cottingham ....	Yonge .....	Avenue Rd.....	" .....	1886	1896
Cowan .....	King .....	Queen .....	" .....	Parkdale	1896
Crawford ....	Queen .....	College.....	" .....	1885	1897
Darling .....	N. terminus ....	End of Sewer....	" .....	1891	1896
Davenport Rd ..	Yonge .....	Hazelton.....	" .....	Yorkville	1897
Davenport Rd ..	Avenue Rd.....	West City limit..	" .....	1886	1896
Dean .....	Wilton .....	200 ft. North....	" .....	1886	1896
DeGrassi .....	Queen .....	Gerrard .....	" .....	1886	1897
Delaware Ave ..	College .....	Bloor .....	" .....	1892	1897
Delaware Ave ..	Bloor .....	Van Horne .....	" .....	1891	1897
Division.....	Spadina .....	Huron .....	" .....	1884	1894
Dorset .....	King .....	Wellington .....	" .....	1883	1894
Dovercourt ....	Queen .....	Dundas .....	" .....	1882	1892
Dovercourt ....	Dundas .....	College.....	" .....	1884	1894
Dowling.....	Queen .....	S. S. Hawthorne.	" .....	Parkdale	1897
Draper .....	Front .....	Wellington Pl. ..	" .....	1884	1894
Dufferin.....	Peel .....	Dundas .....	" .....	1887	1897
Dunn .....	Queen .....	Lake .....	" .....	Parkdale	1896
Dundas .....	Queen .....	Arthur.....	" .....	1883	1892
Dundas .....	Ossington .....	Jamieson .....	C. B. & Cobble.	1887	1897
Duncan .....	Sorauren .....	Roncesvalles ....	C. B.....	Parkdale	1897
Dupont .....	Bathurst .....	Manning .....	" .....	1892	1897
Dupont .....	Avenue Rd.....	Bedford Rd.....	" .....	1890	1897

Street.	From	To	Present Pavement.	Date When Laid.	Date of Expiry.
Elgin .....	Avenue Rd ....	West End .....	C. B.....	1887	1897
Elliott .....	Broadview .....	Bolton .....	" .....	1886	1896
Elm Grove .....	King .....	Queen .....	" .....	Parkdale	1896
Euclid .....	College .....	Robinson .....	" .....	1882	1892
Euclid .....	College .....	Ulster .....	" .....	1887	1897
Fenning.....	Queen .....	Humbert.....	" .....	1884	1894
Florence.....	Dufferin.....	Brock .....	" .....	1887	1897
Foxley .....	Dundas .....	Dovercourt.....	" .....	1883	1892
Front .....	Yonge .....	Church .....	" .....	1885	1896
Fuller .....	Queen .....	North Limits...	" .....	Parkdale	1897
Garden .....	Sorauren .....	Macdonell.....	" .....	Parkdale	1897
Gerrard .....	Broadview.....	Howland.....	" .....	1888	1897
Gifford .....	Spruce .....	Carlton .....	" .....	1885	1896
Givens .....	Queen .....	Argyle .....	" .....	1887	1897
Gladstone .....	Queen .....	Dundas .....	" .....	1883	1892
Grange .....	Spadina .....	Esther .....	" .....	1883	1892
Grove .....	Dundas .....	Foxley .....	" .....	1884	1896
Gwynne .....	Queen .....	King.....	" .....	Parkdale	1896
Halton .....	Shaw .....	Dundas .....	" .....	1892	1897
Harbord.....	St. George.....	Huron .....	" .....	1882	1892
Harbord.....	Huron .....	Brunswick .....	" .....	1886	1896
Harbord.....	Brunswick .....	Borden .....	" .....	1886	1896
Harbord.....	Bathurst .....	Borden .....	" .....	1886	1896
Harris (now Hamilton)	Queen .....	Paul .....	" .....	1891	1896
Hayden .....	Church .....	East End .....	" .....	1890	1897
Hazelton .....	Yorkville .....	Davenport .....	" .....	Yorkville	1896
Herrick .....	Bathurst .....	Lippincott .....	" .....	1892	1897
Henderson.....	Clinton .....	Manning (300 ft.)	" .....	1886	1896
Howard .....	Sherbourne .....	Parliament. ....	" .....	1882	1892
Humbert .....	Dundas .....	Dovercourt.....	" .....	1883	1894
Huntley .....	Bloor .....	Earl .....	" .....	1882	1892
Huron .....	Grange Rd.....	Cecil.....	" .....	1887	1897
Huron.....	Cecil .....	College.....	" .....	1886	1897
Jamieson .....	King .....	The Lake.....	" .....	Parkdale	1897
Jamieson .....	King .....	Queen .....	" .....	Parkdale	1894
Johnston .....	Adelaide .....	190 ft. south .....	" .....	1886	1897
Kensington Cr..	Park Rd.....	Huntley .....	C. B. & tar fill.	1891	1896
King .....	Simcoe .....	Strachan.....	C. B. ....	1883	1894
King .....	Sherbourne .....	Don River .....	" .....	1883	1894
King .....	Strachan .....	Armour .....	" .....	1891	1896
King .....	Dufferin.....	Int. with Queen..	" .....	Parkdale	1897
Lakeview .....	Dundas .....	Churchill .....	" .....	1886	1897
Lane between St. Patrick and D'Arcy.	Huron.....	Beverley .....	" .....	1892	1897
Lane s. of Pearl	near Simcoe ....	.....	Cobble ..	1892	1897
Lane e. of Spa- dina Ave.	Grange .....	St. Patrick.....	" ..	1892	1897
Lane bet. Duke and Duchess.	Ontario .....	West Terminus..	C. B. ....	1886	1897
Lane s. of Pearl	between York and Simcoe.....	.....	" .....	1892	1897

Street.	From	To	Present Pavement	Date When Laid.	Date of Expiry.
Lane bet. Yonge and Victoria.	Gould . . . . .	Wilton . . . . .	Cobble ..	1887	1897
Lane bet. Yonge and Victoria.	Adelaide . . . . .	106 ft south . . .	" ..	1892	1897
Lane first w. of	Bay, s. of Wellin	gton . . . . .	C. B. . . .	1889	1897
Langley . . . . .	Broadview . . . . .	DeGrassi . . . . .	" . . . .	1886	1897
Lansdowne . . . .	Queen . . . . .	N. Limit . . . . .	" . . . .	Parkdale	1896
Lefroy (now First Ave).	Broadview . . . . .	Logan . . . . .	" . . . .	1887	1897
Lennox . . . . .	Roncesvalles . . .	Easterly Limit ..	" . . . .	Parkdale	1897
Leonard . . . . .	Nassau . . . . .	Bellevue Pl. . . . .	" . . . .	1886	1896
Leopold . . . . .	Jamieson . . . . .	Lot 19 . . . . .	" . . . .	Parkdale	1897
Leopold . . . . .	Dowling . . . . .	Lot 19 . . . . .	" . . . .	Parkdale	1897
Lippincott . . . . .	Nassau . . . . .	Bloor . . . . .	" . . . .	1885	1896
Lisgar . . . . .	Queen . . . . .	Dundas . . . . .	" . . . .	1882 & 1884	1892
Lucas . . . . .	Sorauren . . . . .	Roncesvalles . . .	" . . . .	1892	1897
Macdonell . . . . .	Queen . . . . .	North Limit . . .	" . . . .	Parkdale	1896
McCaul . . . . .	Queen . . . . .	College . . . . .	" . . . .	1882 & 1883	1887 & 1894
McGee . . . . .	Queen . . . . .	Eastern . . . . .	" . . . .	1885	1896
McKenzie . . . . .	Dale . . . . .	Castle Frank Ave	" . . . .	1886	1897
Major . . . . .	College . . . . .	Bloor . . . . .	" . . . .	1886	1897
Manning . . . . .	Arthur . . . . .	Bloor . . . . .	" . . . .	1886	1897
Mansfield . . . . .	Bellwoods . . . . .	Clinton . . . . .	" . . . .	1884	1894
Maple Grove . . . .	O'Hara . . . . .	Brockton . . . . .	" . . . .	Parkdale	1896
Markham . . . . .	Queen . . . . .	College . . . . .	" . . . .	1885	1896
Marion . . . . .	O'Hara . . . . .	Lansdowne . . . .	" . . . .	Parkdale	1896
Massey . . . . .	King . . . . .	Wellington . . . .	" . . . .	1887	1897
Massey . . . . .	King . . . . .	Queen . . . . .	" . . . .	1891	1897
Maude . . . . .	Adelaide . . . . .	Farley . . . . .	" . . . .	1887	1897
Maynard . . . . .	King . . . . .	Leopold . . . . .	" . . . .	Parkdale	1897
Melbourne . . . . .	Dufferin . . . . .	Cowan . . . . .	" . . . .	Parkdale	1896
Mercer . . . . .	John . . . . .	Peter . . . . .	" . . . .	1855	1896
Metcalf . . . . .	Carlton . . . . .	Winchester . . . .	" . . . .	1885	1896
Metcalf . . . . .	Winchester . . . .	Amelia . . . . .	" . . . .	1888	1895
Morse . . . . .	Queen . . . . .	Ashbridge's Bay..	" . . . .	1886	1897
Munroe . . . . .	Queen . . . . .	Gerrard . . . . .	" . . . .	1887	1897
Murray . . . . .	Caer Howell . . .	North End . . . .	" . . . .	1882	1892
Napier . . . . .	Munroe . . . . .	Lane . . . . .	" . . . .	1891	1896
Nassau . . . . .	Spadina . . . . .	Bathurst . . . . .	" . . . .	1882 & 1884	1894
Niagara . . . . .	Bathurst . . . . .	King . . . . .	" . . . .	1885	1896
Niagara . . . . .	King . . . . .	Queen . . . . .	" . . . .	1887	1897
Noble . . . . .	Brockton Rd. . . .	East Limit . . . .	" . . . .	Parkdale	1897
North Drive . . . .	Rosedale Rd. . . .	Woodland Ave ..	Ced. & Gravel.	Yorkville	1897
O'Hara . . . . .	Present terminus	Railway track . .	C. B. . . .	1892	1897
O'Hara . . . . .	Queen . . . . .	Lots 1 and 2 . . .	" . . . .	Parkdale	1896
Ontario Pl. . . . .	Ontario . . . . .	270 ft. west . . .	" . . . .	1886	1896
Orde . . . . .	Queen St. College Ave . . . . .	Near McCaul . . .	" . . . .	1882	1892
Orford . . . . .	Parliament . . . .	Easterly . . . . .	" . . . .	1885	1896
Ossington . . . . .	Bloor . . . . .	C. P. R. . . . .	" . . . .	1892	1897
Oxford . . . . .	Lippincott . . . . .	Bellevue . . . . .	" . . . .	1884	1895
Orford . . . . .	Bellevue . . . . .	Augusta . . . . .	" . . . .	1885	1896
Palmerston . . . .	College . . . . .	Arthur . . . . .	" . . . .	1884	1896
Palmerston . . . .	Arthur . . . . .	Robinson . . . . .	" . . . .	1896	1896

Street.	From	To	Present Pavement.	Date When Laid.	Date of Expiry.
Pape .....	Queen .....	Danforth.....	C. B....	1887	1897
Parliament ....	Wellesley .....	Howard .....	" .....	1888	1895
Parliament ....	Queen .....	Gerrard .....	" .....	1882	1892
Park Rd. (for- merly James.)	Woodland .....	Rosedale Rd ....	Ced. & Gravel.	Yorkville	1897
Pearson .....	Sorauren .....	Roncesvalles ....	C. B....	Parkdale	1897
Peel .....	Gladstone .....	Dufferin .....	" .....	1884	1894
Peter .....	Front .....	King.....	" .....	1886	1897
Prospect .....	Rose .....	Parliament.....	" .....	1882	1897
Queen. ....	W. approach to the subway.	West City Limit.	" .....	Parkdale	1896
Queen .....	Yonge .....	Bathurst.....	" .....	1883	1894
Richmond Pl ..	Richmond .....	South End.....	" .....	1886	1896
River .....	Gerrard .....	North End.....	" .....	1887	1897
Robinson .....	Bathurst .....	Euclid .....	" .....	1886	1896
Robert .....	College .....	Bloor .....	" .....	1884	1894
Rolyat .....	Dundas .....	Grove .....	" .....	1885	1896
Ross .....	Cecil .....	College .....	" .....	1883	1894
Rossin Ho. Lane	York .....	East Term.....	Cobble..	1891	1897
Rosedale Rd....	Park Rd.....	North Drive ....	Ced. & Gravel.	Yorkville	1897
Rosedale Rd. ..	Roxborough ....	North Drive ....	C. B....	1891	1897
Roxborough ....	Yonge .....	1,328 ft. west....	" .....	1892	1897
Russell .....	St. George.....	Spadina .....	" .....	1883	1892
Sackville .....	Spruce .....	Carlton .....	" .....	1887	1897
Sackville .....	Wellesley .....	Cemetery .....	" .....	1888	1895
Salisbury .....	Sackville .....	East Term.....	" .....	1886	1897
Scollard .....	Queen .....	Arthur .....	" .....	Yorkville	1897
Shaw .....	Queen .....	Arthur .....	" .....	1884	1895
Shannon .....	Ossington .....	Dovercourt Rd....	" .....	1887	1897
Spadina .....	Queen .....	College .....	" .....	1884	1894
Spadina .....	Queen .....	King.....	" .....	1883	1894
Spadina .....	King .....	Front .....	" .....	1882	1892
Spencer .....	King .....	Huxley .....	" .....	Parkdale	1897
Springhurst ....	King .....	Jamieson .....	" .....	Parkdale	1897
Spruce .....	Sumach .....	Don River .....	" .....	1886	1897
Spruce .....	Parliament ....	Sumach .....	" .....	1884	1895
Stafford .....	Defoe .....	Clifford .....	" .....	1887	1897
Stafford .....	King .....	Defoe .....	" .....	1886	1896
Stewart .....	Portland .....	Bathurst.....	" .....	1884	1894
St. Patrick ....	Denison .....	Bathurst.....	" .....	1884	1895
St. Mary .....	North .....	Queen's Park....	" .....	1883	1894
St. Joseph.....	Yonge .....	St. Vincent.....	" .....	1881	City's exp.
Sumach .....	Gerrard .....	Carlton .....	" .....	1883	1892
Sumach .....	Carlton .....	Winchester.....	" .....	1883	1894
Sumach .....	Winchester ....	Wellesley .....	" .....	1884	1896
Sumach .....	Wellesley .....	Amelia .....	" .....	1885	1896
Sassex .....	St. George.....	Huron .....	" .....	1885	1896
Sussex .....	Robert .....	Huron .....	" .....	1887	1897
Sword.....	Gerrard .....	Spruce .....	" .....	1886	1897
Toronto .....	North of King ..	Adelaide .....	Asphalt.	1891	1897
Tranby .....	Bedford .....	157½ ft. east ....	C. B....	1891	1896
Trinity .....	King .....	South Term .....	" .....	1884	1895
Turner .....	Tecumseth ....	West End .....	" .....	1886	1896



Street.	From	To	Present Pavement.	Date When Laid.	Date of Expiry.
Vanauley .....	Queen.....	High .....	C. B.....	1886	1897
Vanauley .....	St. Patrick.....	St. Andrew.....	" .....	1887	1897
Vermont.....	Bathurst .....	Manning .....	" .....	1891	1896
Victor .....	Broadview.....	DeGrassi.....	" .....	1886	1896
Victoria Cres.....	Dowling .....	Jamieson.....	" .....	Parkdale	1897
Walter .....	Davenport Rd...	McMurrich.....	" .....	1891	1897
Walmer Rd ....	Bloor .....	840 ft. north .....	" .....	1887	1897
Walmer Rd ....	Castle .....	Bernard .....	" .....	1891	1897
Wascana .....	Sumach .....	186 ft. easterly...	" .....	1891	1896
Washington ....	Spadina .....	Huron .....	" .....	1886	1896
Waterloo .....	Gladstone .....	Dufferin .....	" .....	1885	1896
Wellesley .....	Sackville .....	Sumach .....	" .....	1885	1896
Wellesley .....	Sackville .....	Parliament.....	" .....	1884	1894
Wellesley Pl....	Wellesley Cres..	N. End.....	" .....	1881	1891
Wellington ....	Peter .....	Clarence .....	" .....	1886	1896
West Lodge ....	Marion .....	North Limit .....	" .....	Parkdale	1897
Wilson .....	Queen .....	King.....	" .....	Parkdale	1897
William .....	Queen .....	Caer Howel .....	" .....	1887	1897
Wilcox .....	St. George.....	Robert.....	" .....	1886	1896
Winchester ....	Ontario .....	Parliament.....	" .....	1883	1894
Woodsley .....	Esther .....	Bathurst.....	" .....	1883	1892
Woodland .....	North Drive ....	Park Rd .....	Cedar & Gravel.	Yorkville	1897
Yonge.....	Bloor .....	Railway Crossing	C. B....	1885	1897
York .....	Queen .....	King.....	" .....	1884	1895
York .....	King .....	Front .....	" .....	1885	1896

Nearly all the pavements in the above list are badly out of repair, and on some of them it is dangerous to drive a horse faster than a walk.

#### BROKEN STONE ROADWAYS.

Some of the old macadam roadways were repaired by picking up and loosening the surface, then adding a few inches of new broken stone with a top-dressing of sufficient sand to bind the material, all of which was thoroughly rolled as the work progressed. The cost of such repairs, however, was much greater than anticipated, and as many of these old roads are in the centre of the City, where the travel is heavy, it is doubtful if the money so spent will give satisfactory results.

#### BRICK PAVEMENTS.

Brick pavements seem to be increasing in popularity with the Toronto public. In 1895 the first two were laid on residential



streets: this year four were constructed and one on a lane. Those on streets had a four-inch concrete foundation, with an inch of sand for a cushion between the concrete and the bricks. The joints between the bricks were filled with Portland cement grout, except in one case, where paving pitch was used. The foundation for the brick pavement on the lane was six inches of gravel. All of these were petitioned for by the ratepayers whose property abutted on the streets: and, from the number of petition forms asked for, it seems likely that several more of these pavements will be laid in 1897.

All the paving bricks used during the season were made by Canadian manufacturers, and most of them were repressed and bevel-edged. These were supplied by the Ontario Paving Brick Co. The plain bricks were made by the Don Valley Co. Samples of each were subjected to abrasion and absorption tests before being accepted. For the abrasion test three bricks were placed in a cast iron cylinder two feet in diameter by three feet in length, together with about one hundred and forty (140) lbs. of scrap iron, varying in weight from about eleven (11) lbs. to ten (10) ozs., the weight of the average piece being about three (3) lbs. The rattler was then given two thousand (2,000) revolutions at the rate of twenty-nine (29) revolutions per minute, after which the bricks were taken out and weighed, then given another two thousand (2,000) revolutions and again weighed; if their loss was greater than eight (8) per cent. of their own weight after two thousand, and thirteen (13) per cent. after four thousand (4,000) revolutions, the bricks were rejected, of which those tested were a sample. This test has not been altogether satisfactory, owing to the pieces of iron becoming very much worn and the difficulty of determining exactly what the rattler contained. In order that we might have complete knowledge of its contents, we had iron cubes cast (with the corners rounded to about  $\frac{1}{4}$  inch radius), weighing eight, four and two pounds. These were to replace the scrap iron of the former test; but it was found necessary to discontinue the use of the eight-pound and four-pound cubes, as they were too severe on the bricks. The abrasion test now in use is to put three of the sample bricks submitted by the contractor into the previously mentioned rattler, together with one hundred (100) two-pound rounded cast iron cubes, and give them three thousand (3,000) revolutions, at the rate of twenty-five (25) revolutions per minute, their weight being taken at each fifteen hundred (1,500). Those which

TABLE No. 7.

ASPHALT.

Street.	From	To	Pavement.	Curb	Class of Curb.	Width	Length	Cost per Lin. Foot. Exclusive of Curb.	Cost per Lin. Foot. Inclusive of Curb.	Cost per Square Yard, Exclusive of Curb.	Completed.	Contractors.
			sq. yds.	lin. ft.		ft. in.	ft. in.	\$ c.	\$ c.	\$ c.		
Leader Lane	Wellington	Colborne	226	424	6 in. stone	10	193	2 74	4 10	2 35	May 28, 1896	Warren-Scharf.
Lane 1st west of Yonge	Adelaide	Temperance	550	737	4 in. stone	10	680	1 88	1 70	1 50	May 28, 1896	"
Brunswick Ave	College	Uster	3,693	2,643	"	24	1,262	5 88	7 08	2 00	Oct. 20, 1896	David Chalmers.

## BRICK ON CONCRETE.

Prince Arthur	Avenue Rd	628 feet west	1,075	1,259	4 in. stone	24	628	4 35	5 55	1 63	Aug. 17, 1896	D. L. VanVlack
Henry	Baldwin	College	2,551	2,210	"	21	1,044	3 87	5 07	1 65	Aug. 31, 1896	"
Lowdler	Avenue Rd	530 feet west	1,565	1,312	"	22	630	3 46	4 66	1 40	Oct. 1, 1896	"
Huron	College	Bloor	6,770	5,880	"	24	2,624	4 08	5 47	1 88	Not completed.	"
St. Lawrence Market			1,195							2 03	Oct. 8, 1896	Day labor.
Front, n.w. cor. Frederick, in front of car shed			364							2 17	June 5, 1896	"

## CEDAR BLOCK ON GRAVEL.

Blevins Place	Sumsch	295 feet east	569	632	Wooden	16	295	1 41	1 71	78	Aug. 19, 1896	Day labor.
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## CEDAR BLOCK ON CONCRETE.

Simcoe	Front	Station	902	455	6 in. stone	36	9	203	6 22	7 82	1 35	July 27, 1896	Burns & McCormack.
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## MACADAM ROADS.

Beverley	Queen	College	9,809	6,303	4 in. stone	24	3,374	2 95	4 40	1 02	Sept. 23, 1896	Mrs. A. Farquhar.
Queen St. College Ave	Queen	College	6,533		None	21	2,800	52		23		Day labor.
Richmond	York	Bay	3,923	1,733	4 in. stone	42	813				Not completed.	"
Temperance	Bay	Yonge	2,922		None	45	584	7 2 09		42		"
Jervis	King	Queen	5,605		"	41	1,170	1 92		40		"

## CEDAR BLOCK AND BRICE ON TRACK ALLOWANCE.

Yorkville	Avenue Road	Yonge	352 brick 3,734 cedar	4,031	Wooden	27	1,965	1 46	1 73	\$1 50 brick.. 39 cedar..	Aug. 14, 1896	D. L. VanVlack.
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## BRICK ON GRAVEL.

Grand Opera House L.	Adelaide	119 feet south	316	168	None	18	1	149	3 06	3 25	1 31	Nov. 26, 1896	J. C. S. Shields.
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## CONCRETE SIDEWALKS.

Street.	From	To	Side.	Class of Curbing.	Width.	Length in Feet.	Cost Per Lin. Foot.	Completed.	Contractor.
					It. in.	ft. in.	\$ c.		
Leader Lane	Wellington	Colborne	Both	None	5	403	0 88	June 18, 1896	A. Gardner & Co
Carlton	Yonge	Point 55 ft. 9 in. W. of Church	South	"	6	877	0 89	Sept. 1, 1896	"
Queen's Park Crescent	W. S. College Street	538 ft. N. and N. west	West	"	6	534	0 91	Oct. 26, 1896	Contracting and Paving Co.
York	Front	Wellington	"	"	12	443	2 1 78	Nov. 12, 1896	A. Gardner & Co.
(Teranay)	Louisa	Point 984 ft. north	"	"	12	98	2 69	April 24, 1896	Contracting and Paving Co.)
(Louisa)	Teranay	Point 60 ft. west	North	"	10	60	2 33	April 24, 1896	"
Queen's Park	In front of Nos. 97 to 71		East	"	6	201			"
Sherbourne	" Nos. 247, 249, 251		"	"	6	104			Private.
Adelaide	" Grand Opera House		South	6 in. concrete	12	99			"
Yonge	" Nos. 787, 790, 791		East	Concrete	11	55	9		"
"	" No. 34		West	6 in. stone	11	5	40 8		"
Wellington	" Nos. 58, 60, 62, 64		North	None	11	63	6		"
James	Albert	97 ft. south	East	6 in. stone	13	10	07		"
Albert	James	81 ft. 6 in. east	West	"	15	81	6		"
Bond	In front of Jewish Synagogue.	9 ft. 6 in. south	East	None	7	63	4		"
West Market	" No. 34		West	6 in. stone	11	27			"

## BRICK SIDEWALKS.

York	Wellington	Bosnia House Lane	6 in. stone	12	244	9	1 70		Day labor.
St. Lawrence Market					836	4	\$1 66 per sq. yd.		"



lose more than eight (8) per cent. of their own weight during fifteen hundred (1,500) revolutions, or twelve (12) per cent. during three thousand (3,000), are rejected.

The absorption test, which formerly took three days, we have reduced to six hours by taking a small piece weighing from sixty (60) to one hundred and twenty (120) grammes from the interior of one of the sample bricks submitted for test. This piece is first thoroughly dried by artificial heat, then weighed, after which it is immersed in water for six (6) hours, then dried with a cloth and again weighed, two per cent. being the maximum increase allowed.

Now that the time occupied in testing has been shortened as far as practicable, it is to be hoped that delays to construction work through this source may be reduced to a minimum.

Table No. 7 shows in detail all the roadways and permanent sidewalks constructed during the year.

Yours truly,

C. H. RUST,

*Deputy City Engineer.*

# SEWERS AND DRAINS.

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CITY ENGINEER'S DEPT.,

Toronto, 31st December, 1896.

E. H. KEATING, ESQ.,

*City Engineer.*

DEAR SIR,—Herewith is submitted the annual report of work done by this Department for the year 1896.

Only 600 feet of 9-inch sewer and 260 feet of 12-inch sewer have been constructed this year. The work of the Department has been chiefly that of repairs and cleaning, the building of manholes and gullies: some 107 new manholes and 295 gullies having been built, together with five flushing tanks and one ventilator; and 30 manholes and 56 gullies were repaired. The mileage of sewers flushed and cleaned was 123.6, at a cost of \$2,764.81, or \$22.36 per mile.

A careful examination has been made of all sewers through which it was possible to send a man, so as to enable next year's operations to be devoted where they will do the most good.

The invert of Simcoe Street sewer was in such a bad condition as to require repairs from King Street to Caer Howel Street. These have been made. Spadina Avenue sewer also has been repaired from Queen Street to St. Andrew's Street, and the outlet of Leslie Street sewer reconstructed.

A new sewer and drains were constructed through the St. Lawrence Market. There are 64 flush tanks in operation, of which number five were constructed during the year.

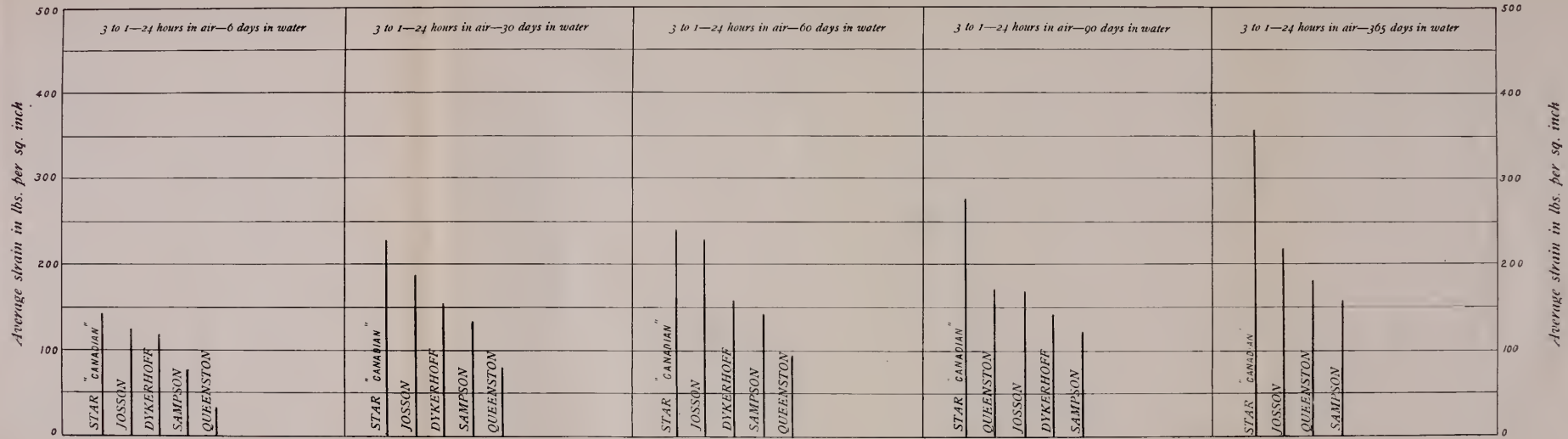
Plans and estimates have also been prepared for the extension of Fort Rouille and Dufferin Street sewers.

## PRIVATE DRAINS.

During the year 282 private drains were constructed and repaired, requiring the laying of 6,350 feet of 6-inch drain, 292 feet of 9-inch, and 33 feet of 12-inch. In addition, 35 private drains were repaired and 6 flushed, the whole of this work being supervised by one inspector.



1896  
Diagram Shewing the Tensile Strength of Various Brands of Cements



City Engineer's Office,  
Toronto, '96

1896  
*Diagram Shewing the Tensile Strength of Various Brands of Cements*  
 NEAT CEMENT

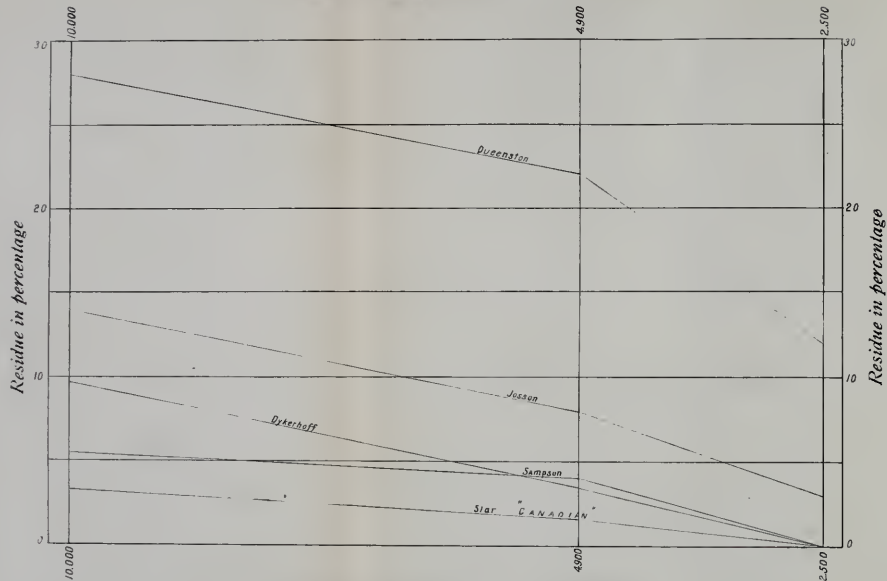


*City Engineer's Office,  
 Toronto, '96*

1896

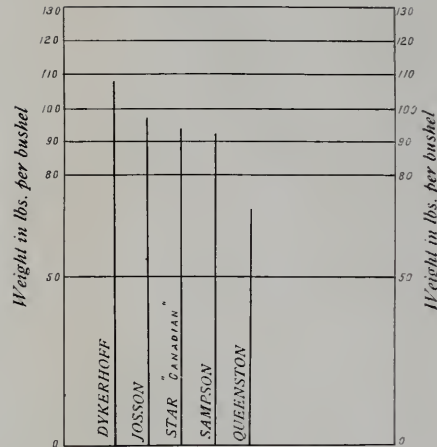
# SIFTING DIAGRAM

Number of meshes in sieve per sq. inch.



Number of meshes in sieve per sq. inch.

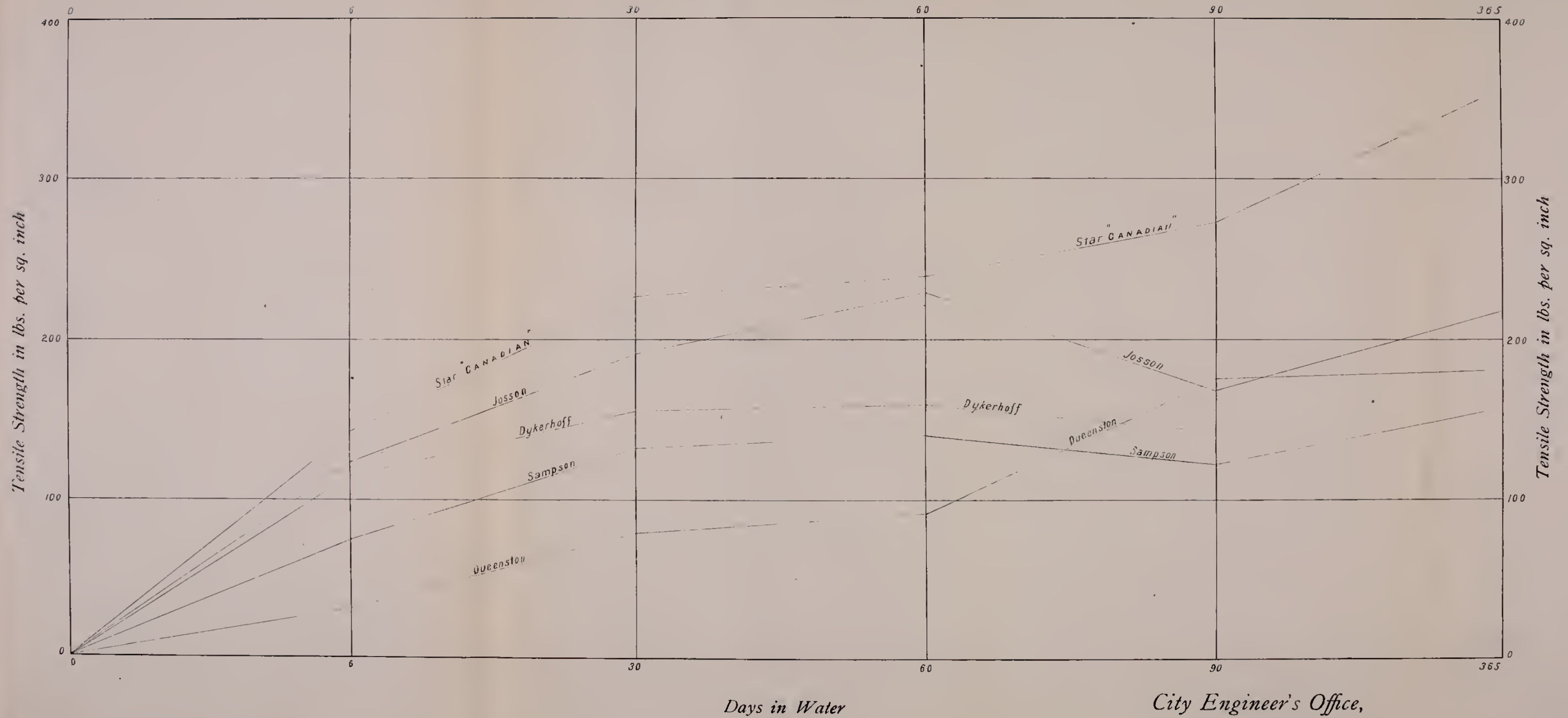
# WEIGHT DIAGRAM



City Engineer's Office,

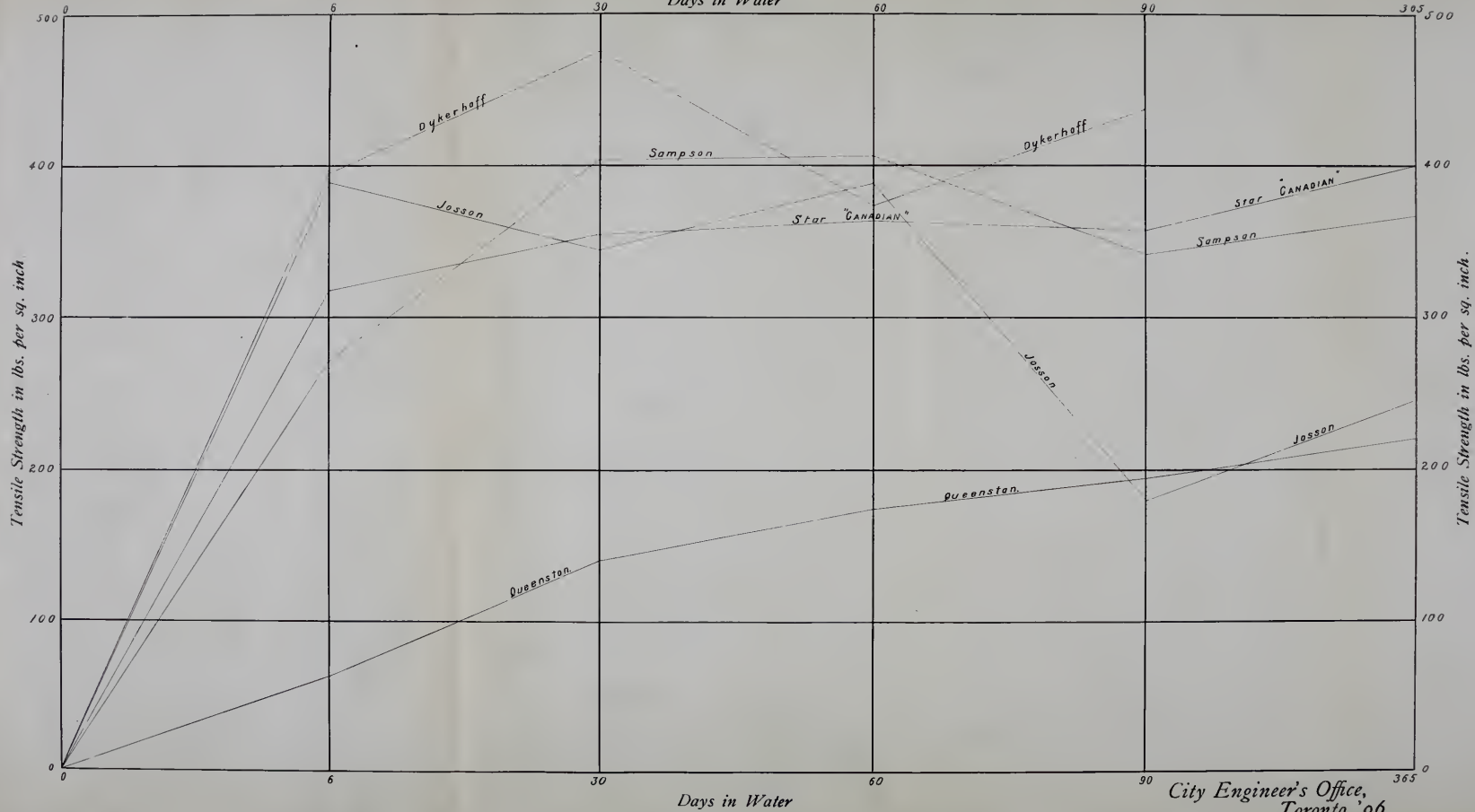
Toronto, '96

1896  
CEMENT MORTAR—3 to 1  
Days in Water



City Engineer's Office,  
Toronto, '96

1896  
NEAT CEMENT  
Days in Water







Seven contract plans and twelve plans for day labor work have been made, together with 24 working drawings and 120 miscellaneous plans ; 374 letters were received and answered and 220 complaints received and attended to.

#### CEMENT TESTS.

Owing to the comparatively small amount of work done during the past year the cement tests have not been so numerous as in former years. The attached diagrams give the brands of cement used, their tensile strength, etc.

Yours obediently,

C. L. FELLOWES.

*Assistant Engineer in charge of Sewers.*

# REPORT OF STREET COMMISSIONER

FOR YEAR ENDING DEC. 31ST, 1896.

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CITY ENGINEER'S DEPT.,

Toronto, December 31st, 1896.

E. H. KEATING, ESQ.,

*City Engineer.*

## MACADAM ROADWAYS.

DEAR SIR,—The undermentioned roadways have been reconstructed during the season past, and I would recommend that for the future the same plan be followed on all macadam streets which have to be repaired, as when once done they can be maintained in good shape at little expense :

Duncan	Street, from Queen Street to Adelaide Street.
Anderson	“ “ Simcoe “ William “
Simcoe	“ “ King “ Front “
Wellington	“ “ Simcoe “ John “

## TEMPERANCE STREET AND JARVIS STREET.

The macadam roadways on Temperance Street, from Yonge to Bay Street, and on Jarvis Street, from King to Queen Street, were renewed as local improvements.

## QUEEN'S PARK ROADWAY.

The macadam roadway in Queen's Park, extending southerly from Hoskin Avenue on the west crescent to Queen Street, which was left incomplete last year owing to the frost setting in, has been completed.

## STREET RAILWAY RECONSTRUCTION OF CEDAR BLOCK PAVEMENTS.

The cedar block pavement, excluding the “devil strip” in the track allowance on Queen Street, from Bathurst to Gladstone Avenue, and on King Street, from Sherbourne to St. Lawrence Street, has been renewed throughout, the blocks, particularly in the centre of the tracks, being almost worn away. Other portions of the track system which are block paved, will also require to be dealt with similarly in the near future.

## WOODEN SIDEWALKS.

In my report of last year I dealt strongly with the question of sidewalk renewals, pointing out how the property owners were systematically opposing our recommendations for new walks to replace existing ones which were absolutely dangerous for traffic. I regret having occasion to report that the situation has not materially improved since that time. Since the year 1890, when we laid nearly 58 miles of plank sidewalk, representing high water mark, there has been a steady diminution in this branch of work each succeeding year up to the present, which is the lowest on record, since the Department was organized, namely, 8.482 miles against 14.799 miles for last year. The following is a table of wooden sidewalks laid during the year:

Width.	Length.
4 feet .....	1.634 miles.
5 $\frac{1}{2}$ " .....	1.004 "
6 " .....	5.001 "
8 " .....	.375 "
12 " .....	.463 "
Total .....	8.482 "

Material consumed: Lumber, 653,811 feet b.m.; nails, 18,185 lbs.

For several years back the plank walks throughout the City have been steadily deteriorating, and all our efforts to safeguard the public by keeping them up to a proper standard, have been rendered null and void through the attitude of the property owners.

The position in which the City is placed under the operation of the Statutes governing local improvement works recommended on the initiative is, to say the least, anomalous. It may safely be taken for granted that particular care is taken during this period of stringency and business depression to recommend no work that is not absolutely necessary in the public interest. Yet the law, as it now stands, debars the City from making a second recommendation on the initiative within two years from the date of the first if such was defeated by the property owners interested. It will easily be understood how a common plank sidewalk will depreciate during these two years. The City's hands are tied, yet it must not be forgotten that the liability for accidents is not abrogated in one whit. The Corporation, in its own defence, should not lose a moment in seeking to obtain a change from this intolerable state of affairs.

The Committee on Works, realizing the position, issued an order that in instances such as I have designated, where planks became broken or removed, the cavity should be filled in with cinders or sand, and this course has been followed to a considerable extent. It is a great pity that Council does not see its way to adopt the suggestion forwarded through the Committee some time ago, namely, that the defective walks included in the above category be entirely removed. Such a course would at any rate ensure public safety.

#### LAKE SHORE ROAD SIDEWALK.

Last year we constructed a six-foot wooden sidewalk on Lake Shore Road, extending westerly from the railway crossing to Howard Park entrance. Early in spring the sum of \$500 was appropriated for extending the walk further west, which was done, a distance of 1,458 feet from Howard Park entrance being covered. It was constructed on the same lines as the first portion, namely, with a hand-rail on the south or the lake side, and a 2-inch x 8-inch kerb on the road side.

#### WOODEN SIDEWALK EXTENSIONS.

The sums received and paid to the City Treasurer for short sections of sidewalk and extensions to doors, steps, etc., totalled \$1,068.68. Many instances have occurred where property owners have had new sidewalks put down opposite their respective properties as a cash transaction because of the action of their neighbors in petitioning against new walks recommended for construction.

#### YORK STREET BRICK SIDEWALK.

A vitrified brick walk was constructed by day labor as a local improvement on the east side of York Street, from the Rossin House Lane to Wellington Street

The foundation is cement mortar laid on a bed of cinders, and the bricks are grouted with cement.

#### STREET OPENING PERMITS.

Permits to the number of thirty-five were issued to builders, excavators and others to temporarily remove sections of sidewalk. The total amount received and held as a guarantee that the walks shall be restored in a satisfactory manner (\$10 being required for a plank walk and \$20 for stone) was \$360, of which \$350 was refunded.

The sums received on behalf of miscellaneous account, and paid over to the City Treasurer amounted to \$1,031.79.



## POUND FEES.

The pounds, of which we have charge, have yielded the following sums in fees :

Northern .....	\$60 90
Western .....	4 50
Eastern .....	39 10
Total .....	\$104 50

## STONE CRUSHER.

In July last the Corporation purchased a machine for crushing stone from the Copp Bros. Co. (Limited), of Hamilton, Ont., for the sum of \$700. Its guaranteed capacity per hour is 11 cubic yards. Indicated horse-power to produce the aforesaid quantity, twelve to eighteen. Since the machine came into our possession we have built a screen and elevating apparatus by which the stone, after the crushing process, is carried into the screen which sorts it into six sizes suitable for all purposes, and removes the dust.

The machine is giving every satisfaction, and has fulfilled, in every respect, the guarantee of the manufacturers.

## STREET WATERING.

There is nothing of a special character to record under this heading. The usual service, both of the wagons and trolley tanks was operated, and the system as now perfected appears to give general satisfaction.

No. 1 trolley sprinkler commenced on April 20th and was taken off on Sept. 29th. No. 2 was in operation from April 20th to Nov. 4th, and No. 3 from April 23rd to Sept. 16th. The distance covered by the three during the season was 18,372 miles ; loads of water consumed in the sprinkling were 8,266 representing 22,211,500 gallons.

The wagons distributed 104,053 loads representing 52,026,000 gallons, making a grand total of 74,287,500 gallons consumed this year in the street watering service.

We have received enquiries and requests for information regarding the trolley system of distribution from various municipalities throughout the Province where an electric street car service is in operation, the scheme apparently being generally approved of.

---

### SCAVENGING.

There have been no changes of importance in this branch of our work. It is satisfactory to note that our efforts to induce householders to keep ashes and garbage in separate vessels, also to discontinue the practice of throwing the stuff loosely on the lanes, have met with a fair measure of success. We have had occasion to take a few persons into Court who would persist in disregarding the above mentioned regulations after being warned of the consequences. In no instance, however, did we press for a fine; the defendants assuring the Magistrate that no further ground of complaint would be given. It is only by the utmost vigilance that householders, generally speaking, are prevented from lapsing into the old habits in regard to the disposal of refuse—backsliding, in this connection, seeming to be particularly easy. Another matter, of which we have heard less during the past year than formerly, is the purloining of barrels, boxes and other vessels used for storing garbage and ashes. Mischievous boys, pedlars and others used to make this a practice of beating up and down the lanes, removing all the vessels they could lay their hands on. I obtained the co-operation of the police in detecting this class of offenders, and the fact becoming known amongst them, together with a few convictions we secured against persons we took before the Magistrate, has had a salutary effect.

The total number of loads removed by the scavengers was 109,096, of which 32,329 were garbage, and the remainder (76,767) ashes.

The garbage was consumed at the crematories, together with 448 dead cats and 397 dogs.

The ashes were used for filling in various lands, namely, the "Alternative Site" on the water front, under agreement with the C. P. R. Co., Cherry Street, and the Rosedale Ravine Drive, etc.

### CULVERTS AND GULLIES.

The numerous culverts and gullies throughout the City have been regularly cleaned, all defects in their construction having been reported to and promptly repaired by the Sewer Department.

### STONE AND WOODEN CROSSINGS, AND WOODEN CURBING.

Repairs and maintenance of the above have been made on a scale commensurate with the appropriations voted by Council for same.

## SNOW CLEANING.

Owing to the increase of the snow fall last winter over the average for some years past, the mileage of sidewalks cleaned was considerably in excess of the preceding winter, being 536 miles 3,442 feet, as against 346 miles 642 feet last winter, a difference of 190 miles 2,800 feet. The rate per foot is also in advance of the rate for last winter's cleaning, being  $4\frac{1}{10}$  mills against  $\frac{2}{3}$  of a cent, an increase of  $\frac{1}{10}$  of a mill. The total expenditure for the work, including clerical work, was \$12,202.39.

The rate per foot has varied slightly each year since the Department took the work, the average being  $\frac{1}{2}$  cent. I am not sanguine that this amount will be materially reduced so long as present conditions remain; that is, firstly, the 24 hours wait we have to observe after a snow fall before the cleaning may commence, and, secondly, the employment of casual labor. If the delay was shortened to say nine hours, as I have over and again recommended, and if we were permitted to employ the best labor obtainable, I am satisfied the expense of this work could be cut down fully one-half or more. I trust the Corporation will renew its application to the Legislature for amendment to the provision of the Statute making it compulsory for the City to wait 24 hours before commencing the cleaning after a snow fall, until successful.

Last year I drew attention to the fact that the expenditure for this service had been met each year, from the time we took charge of it in 1890, out of our street cleaning appropriation, the aggregate of the sums thus expended amounting to no less a sum than \$28,186.23, not one dollar of which, so far as was known, had ever been refunded from the sums collected from the owners of the properties cleaned, and in commenting on this injustice I expressed the hope that Council would for the future appropriate a special fund to defray the current expenses of the snow cleaning, pending the collection of the charges from the proper parties. I am pleased to be able to say that this suggestion was acted on; the City Treasurer having paid the running expenses out of a special appropriation which I understand was re-imbursed to the extent of the snow tax paid in by persons whose properties were cleaned by us.

## STREET CLEANING.

This important service, so closely allied to the health and comfort of the citizens, has received every attention. The work has been very

much handicapped as regards block-paved streets by reason of their defective condition, it being simply impossible to clean them thoroughly, with the numerous holes and cavities in the blocks making a lodgment for the dirt. The expense of the work is also materially increased from this cause.

The main thoroughfares, paved with asphalt, are still cleaned by the patrol or hand system during the summer season. It is the only satisfactory method where the traffic is heavy. We have, however, discontinued the system on most of the asphalt paved streets in the residential section, substituting the machine brooms, which are put on once, and occasionally twice, each week. The reduction in the expenditure on that branch of the work has been used on the ordinary street cleaning service.

The appropriation voted by Council was \$54,000, out of which we spent \$11,694.47 before the date of commencing the cleaning proper, namely, March 18th, on the removal of snow from bridges, street intersections, roadways, channels, etc. Allowing a further sum of \$4,374.56, cost of cleaning asphalt pavements, leaves \$37,930.97 as the sum spent on the regular service. Total miles cleaned, lineal, was 1,886, which leaves the cost per mile at \$20.11. Number of loads of sweepings, scrapings, etc., removed was 44,806, the bulk of which was used for filling in various sites.

#### CHERRY STREET PILING.

Cherry Street, on its west line, has been sheet-piled for a distance of 173 feet south of the old channel of the Don River, for the purpose of preventing the filling material (chiefly ashes and street sweepings) being washed away into the new channel; also to form a roadway for the filling that will be required there when the Cherry Street bridge is constructed.

#### COMPLAINTS.

Complaints to the number of 1,850, have been received and promptly disposed of. These relate to various matters connected with the streets and lanes, but the greater number refer to wooden sidewalks, which, in their present condition, require constant supervision to keep moderately safe.

Respectfully submitted,

JOHN JONES,  
*Street Commissioner.*



## LIST OF WOODEN SIDEWALKS CONSTRUCTED BY STREET COMMISSIONER'S DEPARTMENT DURING YEAR 1896.

## DISTRICT No. 1.

Street.	Side.	From	To	Width (feet.)	Length (feet.)	Lumber (B.M.)	Nails (lbs.)	Total Cost.
Cornwall.....	N..	River .....	East end .....	4	448	4,779	125	\$ c. 84 96
Smith .....	N..	Logan.....	Point 414 ft. east	4	414	4,552	200	91 40
Withrow.....	N..	.....	Point 414 ft. east	4	414	4,552	200	84 13
*King .....	N..	River .....	Sumach .....	8	717	15,884	350	293 70
Sumach .....	E..	King .....	Funstan .....	6	251	4,016	100	71 28
Wilton .....	N..	Sumach.....	River .....	6	583	9,658	275	170 73
Morse .....	W..	Queen.....	Eastern .....	5½	956	14,022	370	270 41

## DISTRICT No. 2.

Britain .....	S ..	George .....	Sherbourne .....	4	652	6,944	200	124 56
Glen Road .....	W ..	Hill .....	City limit .....	5½	269	3,588	100	77 85
Homewood Pl. B ..	W ..	Wellesley .....	North end .....	4	296	3,157	125	55 72
†Maitland Pl. B ..	B ..	Homewood .....	West end .....	4	482	5,188	150	92 65
Sackville .....	W ..	Winchester .....	Salisbury .....	6	230	3,680	100	62 94
Shuter .....	S ..	Jarvis .....	Sherbourne .....	6	940	15,204	350	262 87
Trinity .....	W ..	King .....	Front .....	6	582	9,312	300	157 46
Duchess .....	N ..	Jarvis .....	George .....	6	266	4,207	100	70 97
" .....	N ..	Ontario .....	Berkeley .....	6	358	6,368	150	153 30
Sackville .....	W ..	Point 84 ft. n. of Queen.	St. David .....	6	817	13,245	350	223 89
Jarvis .....	W ..	Queen .....	Richmond .....	6	220	3,530	115	65 09
King .....	S ..	Trinity .....	Erin .....	8	146	3,275	100	57 54
†Pembroke .....	W ..	Shuter .....	Gerrard .....	6	1,826	21,724	700	490 63
Power .....	E ..	19 ft. n. of King	P.105 ft. s. Queen	6	790	12,950	325	213 47
Princess .....	E ..	94 ft. n. of King	Duke .....	6	173	2,766	75	46 15
Parliament .....	E ..	St. David's .....	Pt.156 ft.n.	8	156	3,332	100	61 87
Pembroke .....	E ..	Wilton .....	Gerrard .....	6	995	16,132	425	276 85
Wilton Cr. ....	S ..	Sherbourne .....	Penbrooke .....	6	328	5,265	200	101 14

## DISTRICT No. 3.

Ann .....	S..	Church.....	Mutual.....	6	369	5,904	150	93 02
Front .....	N..	West Market ..	Church.....	12 & 14	426	18,557	400	325 03
Gerrard .....	S..	1st lane e. Yonge	Jarvis.....	6	1,325	21,200	675	379 24
St. Alban's.....	N..	Yonge .....	Surrey Place ...	6	1,294	20,704	550	329 39
Summerhill .....	N..	" .....	Point 151 ft. east	4	151	1,611	50	27 16
Magill .....	S..	Pt. 197 ft. Yonge	Mutual.....	6	1,110	17,760	350	339 91
North Drive .....	S..	Yonge .....	Rosedale Road .	4	875	9,334	300	192 11
Sultan .....	S..	W. end of house No. 3.	The Park .....	4	266	3,990	75	50 72
§Yorkville .....	N..	Yonge .....	Pt. 584 ft. west.	6	546	9,144	200	146 15

\* Not laid from River Street, westerly, 18 feet.

† Not laid on south side from Homewood Avenue, westerly, 99 feet.

‡ 3-inch plank, 540 feet ; 4x4 scantling, 7,527 feet.

§ Not laid in front of Toronto Railway Company's property, 14 feet ; and opposite City Weigh Scales, 24 feet.



## WOODEN SIDEWALKS—Continued.

Street.	Side.	From	To.	Width (feet).	Length (feet).	Lumber (B.M.)	Nails (lbs.)	Total Cost.
								\$ c.
Elizabeth .....	W.	College .....	Grenville .....	6	214	3,424	100	54 23
Wickson .....	N.	Yonge .....	West end .....	4	1,334	14,230	400	234 27
Charles .....	S.	Church .....	Jarvis .....	6	652	10,432	275	267 61
Gerrard .....	N.	Mission .....	Elizabeth .....	6	143	2,288	75	39 23
*Gerrard .....	N.	" .....	Yonge .....	6	816	13,056	400	218 47
Victoria .....	E.	Wilton .....	Gould .....	6	590	9,440	200	149 37

## DISTRICT No. 4.

Beverley .....	E.	College .....	Cecil .....	6	623	9,968	200	173 16
Clyde .....	S.	Spadina .....	Kensington .....	6	450	7,200	150	140 79
Harbord .....	S.	Robert .....	Spadina .....	6	445	7,120	150	151 86
Peter .....	E.	King .....	Front .....	6	852	13,632	300	234 13
Camden .....	N.	Spadina .....	Brant .....	5½	624	8,320	250	216 75
Adelaide .....	N.	Simcoe .....	Spadina .....	6	2,224	35,904	100	620 77
Esther .....	W.	Queen .....	Farley .....	12	223	7,175	100	120 33
John .....	W.	Adelaide .....	Richmond .....	6	418	6,688	150	114 05
Peter .....	W.	King .....	Adelaide .....	6	436	6,976	150	120 26
" .....	W.	Catherine .....	Pt. 75 ft. north.	6	75	1,200	50	23 13
†Queen .....	S.	Duncan .....	Spadina .....	12	1,724	53,445	900	889 49
Bathurst .....	W.	Queen .....	1st lane south	12	100	2,667	100	50 19
" .....	E.	" .....	Farley .....	6	226	3,808	100	65 45
Catharine .....	N.	Peter .....	West end .....	5½	251	3,347	100	60 02
†Eden Pl. ....	N.	Bathurst .....	East end .....	4	334	3,173	150	145 98
Huron .....	E.	Baldwin .....	D'Arcy .....	6	343	5,488	150	109 53
§Spadina .....	W.	Clyde .....	Pt. 161 ft. south of St. Andrew.	6	298	4,768	100	87 26
Widmer .....	B.	Richmond .....	Adelaide .....	5½	836	11,146	300	240 90
Phæbe .....	S.	Beverley .....	Soho .....	4	279	2,976	100	53 66

## DISTRICT No. 5.

Arthur .....	S.	Bellwood ..	Crawford .....	5½	1,142	15,226	450	312 76
Barton .....	N.	Bathurst .....	Palmerston .....	4	574	6,122	175	111 39
Bellwood .....	W.	Arthur .....	Mansfield .....	6	912	14,592	325	357 24
Ossington .....	W.	Dundas .....	Harrison .....	6	558	8,928	250	184 84
Pacific .....	E.	Liberty .....	Atlantic .....	4	735	7,840	250	153 27
Treford .....	N.	Claremont .....	Bellwood .....	4	300	3,200	100	73 19
Claremont .....	W.	Mansfield .....	Treford .....	4	340	3,626	125	106 52
Mansfield .....	N.	Manning .....	Grace .....	6	734	11,744	375	218 42
Dundas .....	W.	120 feet south of Humbert.	Point 183 feet further south.	6	183	2,928	100	52 07
" .....	E.	Bruce .....	Halton .....	8	964	20,565	450	356 93
Euclid .....	W.	616 feet north of Arthur.	College .....	6	910	14,560	350	374 07
Niagara .....	N.	Bathurst .....	Tecumseth .....	6	668	10,688	250	187 28

\* Not laid in front of 68 to 74 (Mrs. Maguire's property).

† Not laid in front of Fire Hall, 44 feet.

‡ 4-inch kerbing, 1,100 feet; spikes, 10 lbs.; 23 cedar posts.

§ Except 90 feet from St. Andrew Street northerly.

WOODEN SIDEWALKS—*Continued.*

## DISTRICT NO. 6.

Street.	Side.	From	To	Width (feet).	Length (feet).	Lumber (B.M.)	Nails (lbs.)	Total Cost.
								z. c.
*Gladstone....	E..	Queen.....	Argyle .....	6	861	13,884	300	373 75
+Coolmine ....	E..	Dundas .....	Pt. 343 ft. north	4	343	3,659	125	103 76
Dominion .....	S..	Dunn .....	E. end of Lot 6.	5½	384	5,837	150	97 14
Marshall.....	N..	Brock .....	Point 190 ft. east	4	190	2,048	75	38 86
Shirley .....	B..	St. Clarens ....	N. Lansdowne..	4	545	6,604	200	111 44
N. Lisgar .....	E..	Afton .....	Mackenzie Cr...	5½	459	6,937	175	117 32
Victoria Cr ...	S..	Dunn .....	East end .....	5½	381	5,793	150	100 36

\* Not laid from Queen Street, northerly to first lane. ‡

+ Laid only from Dundas Street, northerly. 339 feet.

# WATER WORKS.

## REPORT FOR THE YEAR ENDING DECEMBER 31st, 1896.

CITY ENGINEER'S OFFICE,  
Toronto, December 31st, 1896.

### FINANCIAL.

The total expenditure for the year by that portion of the Water Works Department which comes under the supervision of the City Engineer, amounted to \$239,519.26, divided as follows:

Maintenance account .....	\$119,951 37
Construction account .....	99,338 53
Renewals .....	7,625 42
Special work .....	12,603 94
Total.....	\$239,519 26

The expenditure on account of the Revenue and Collection Branch of the Department, which is under the control of the City Treasurer, amounted to \$25,258.43.

The revenue, as reported by City Treasurer, was.....	\$454,276 75
Interest and sinking fund on the debenture debt.....	225,545 00
Expenditure on renewal and repair account.....	7,625 42

### DISTRIBUTION.

There have been laid during the year 4,009 feet of mains, divided as follows, exclusive of pipe laid for Toronto Island Water Works:

518 feet of 12-inch main.			
3,014	"	6	"
406	"	4	"

The following valves and hydrants have been placed:

6.....	12-inch valves.
26.....	6 "
9.....	4 "
3.....	3 "
27.....	hydrants.

## ISLAND WATER WORKS.

## PIPE LAID.

24 feet.....	10-inch pipe, cast-iron.
9,156 “.....	6 “ “
10,680 “.....	4 “ “
502 “.....	2 “ wrought iron.

Total....20,362

## VALVES PUT IN.

6.....	6-inch screw valves.
13.....	4 “ “
2.....	6-inch check valves.
160.....	services.

## METER AND MACHINE SHOP.

A large amount of work was done during the year in replacing worn-out meters with new meters, chiefly of the Siemens & Adamson pattern. A number of the meters removed did not register the quantity of water passing through them by from 40 to 50 and sometimes 60 per cent. The drinking fountains and horse troughs throughout the City were put in use a month earlier than usual.

## MAIN PUMPING STATION.

The pumping plant at the Main Pumping Station consists of five pumping engines of the following capacity :

## Old Engine House—

No. 1, Worthington .....	4,000,000 gallons daily capacity.
No. 2, “ .....	8,000,000 “
No. 3, Inglis & Hunter.....	10,000,000 “

## New Engine House—

No. 4, Blake.....	10,000,000 gallons daily capacity.
No. 5, “ .....	10,000,000 “

The pumping plant in the Old Engine House is of an antiquated description, and should be replaced by high duty engines.

The new engines were kept running almost constantly throughout the year, which is not an economical or proper method, but can scarcely be avoided until some change is made in the pumping plant in the old station, which is urgently needed.

I would therefore recommend that a new high duty engine be substituted for No. 2, or that arrangements be made for converting this engine into one of a high duty type. If this were done, it would

give an opportunity of allowing Nos. 4 and 5 engines to rest occasionally, and would also allow of these engines being periodically examined and overhauled, which should be done in the interests of economy and safety.

No. 4 engine has given a great deal of trouble ever since its construction, and will soon require a considerable amount of money spent upon it in order to make it perfectly safe.

With a view to further economy at this station, arrangements are now being made for the installation of Green's Economizer in connection with the boilers of Nos. 4 and 5 engines.

For further particulars regarding the work done at this station, I beg to refer to the report of the Engineer in charge, which is attached hereto.

#### HIGH LEVEL PUMPING STATION.

The work at this station continues satisfactory, although some difficulty is experienced at times in keeping up a fire pressure above 65 pounds to the inch, the engines having to be run beyond their contract speed in order to accomplish this result. If the consumption in the high level district continues to increase, it will be necessary before long to provide increased pumping facilities at this station. Towards the close of the year a change was made in the coal used by substituting bituminous slack for anthracite, which, it is estimated, will reduce the expense of the station by \$1,000 per annum. Negotiations are now in progress for installing Jones' Underfeed Mechanical Stokers at this station, with the double object of consuming the smoke and of effecting further economy in the coal bill.

#### ROSEHILL RESERVOIR AND PARK.

On the 21st of September, Rosehill Reservoir was emptied and cleaned out, and \$7,000 was expended in extending the concrete lining on the bottom by an additional 9,148 square yards. The total area now covered with concrete is 13,081 square yards, or a little more than one-third of the total area of the bottom of the Reservoir. It is advisable that this work should be continued to completion.

#### CONDUITS.

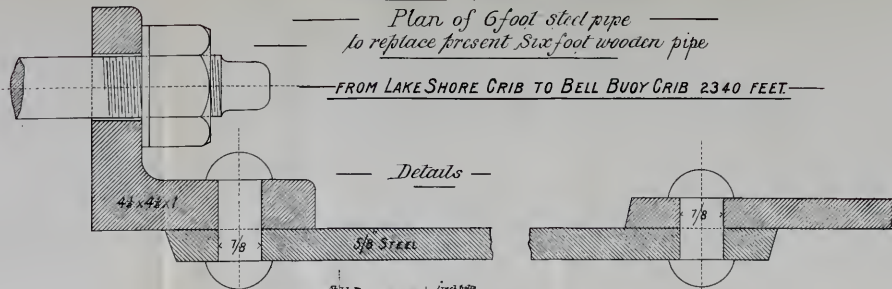
The two contracts mentioned in my previous report for covering and anchoring the conduit were completed during the year, as far as was deemed practicable and necessary. In carrying out the contract



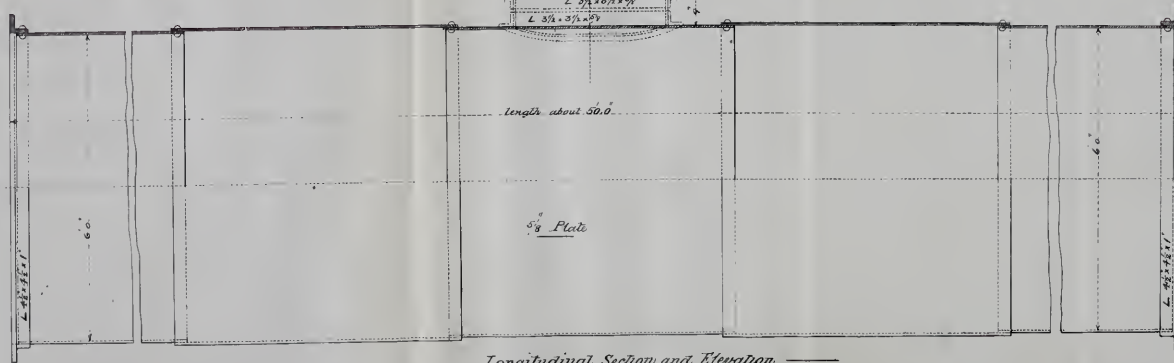
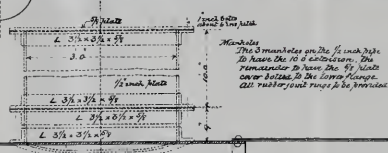
# TORONTO WATER WORKS

*Plan of 6 foot steel pipe  
to replace present Six foot wooden pipe*

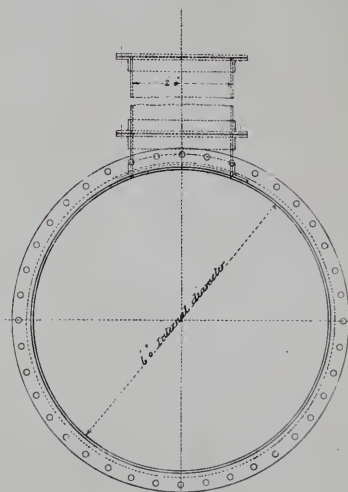
FROM LAKE SHORE CRIB TO BELL BUOY CRIB 2340 FEET.



Details



Longitudinal Section and Elevation



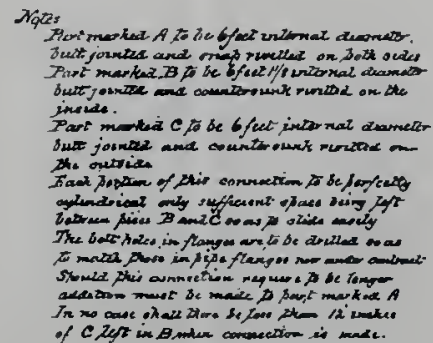
End Elevation

*E. H. Atkins*

*City Eng. 28.5.96.*

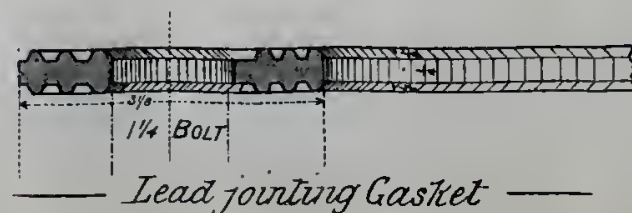
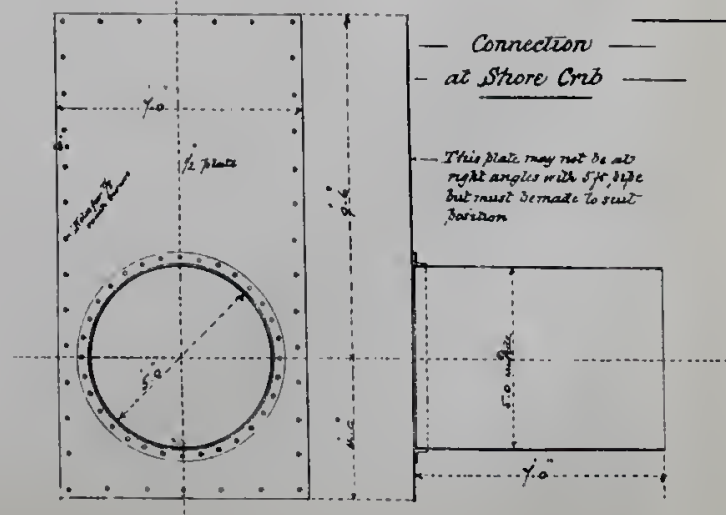
CITY ENGINEERS OFFICE

TORONTO. Dec<sup>r</sup> 10<sup>th</sup> 1895



— CITY ENGINEERS OFFICE —  
— TORONTO, May 96 —

**NEW 6 FOOT STEEL CONDUIT PIPE.**  
BETWEEN LAKE SHORE CRIB AND BELL BUOY CRIB.  
— *Detail of closing length.* —

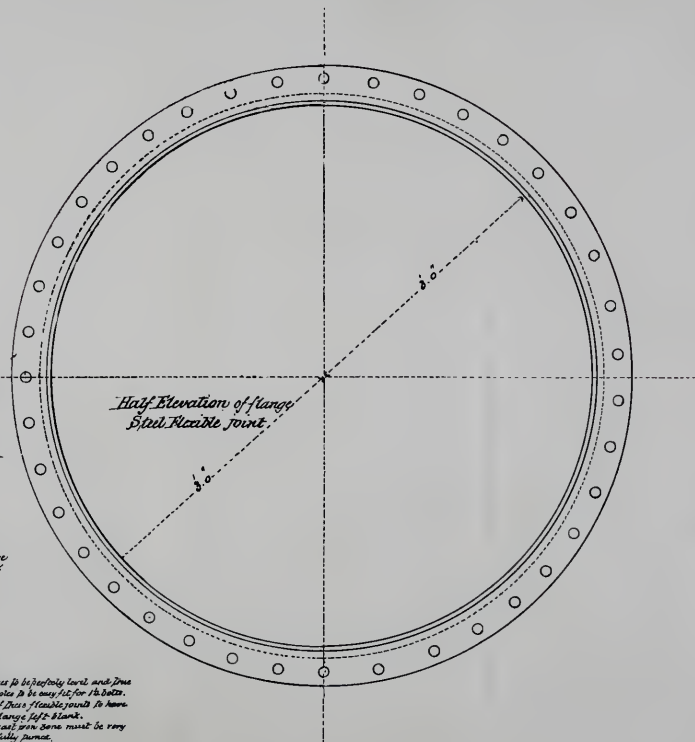
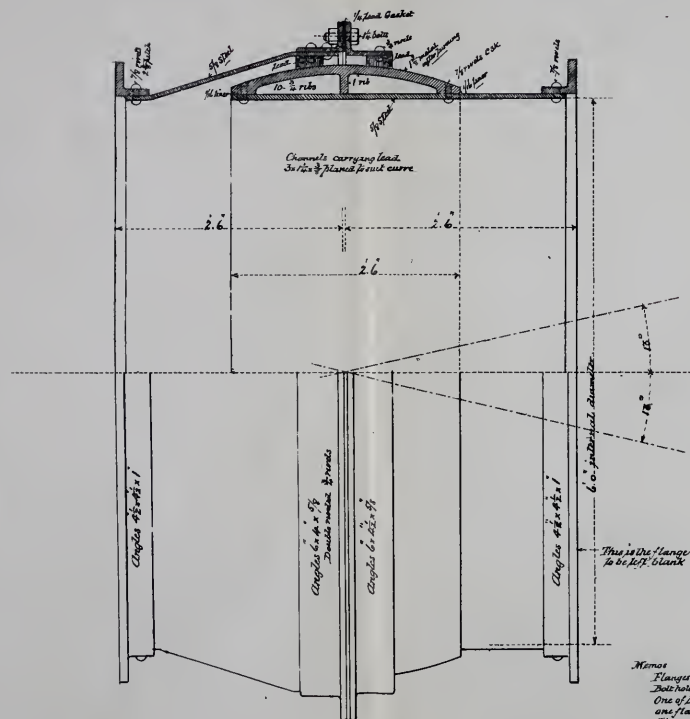


# TORONTO WATER WORKS

FLEXIBLE JOINTS FOR 6 FOOT STEEL PIPE

BETWEEN LAKE SHORE CRIB & BELL BUOY CRIB

*Steel flexible joint*



*Notes*  
Flanges to be perfectly level and true.  
Bolt holes to be evenly fit for 1/2 inch.  
One of these flange joints to have  
one flange left blank.  
The cast iron cone must be very  
carefully joined.

*E. H. Maling*

*City Supr. 28. 5. 96.*



for filling over the 5-ft. pipe, some difficulty was experienced, owing to its exposed position, in preventing the filling from being washed away, and that portion of the work between manholes Nos. 1 and 2 was taken off the contractor's hands and tenders asked for close piling on each side of the pipe, the space between the piles being filled with sand. This work was awarded to Messrs. McNamee & Simpson for \$4,890, the distance covered being 860 feet.

Careful measurements have been taken each week of the accumulation of sand in the 6-ft. wooden, 5-ft. steel and the old 4-ft. wooden conduit. From January to May the sand increased in the 6-ft. pipe between the Shore Crib and the Lake Shore from one to fourteen inches. It was then pumped out, after which, from May to the end of the year, no further increase occurred. In the 5-ft. and 4-ft. pipes, the greatest amount of sand noticed was four inches. Measurements were also taken of the head consumed in delivering the daily supply of water at the Shore Crib, Island Basin, Hanlan's Crib and the Well in the Engine House, and these records have been carefully tabulated. From careful observation, the conclusion arrived at is that should the lake level fall much below the low water of the past year, it will not be possible to maintain an effective fire pressure on the mains in the low level district, and it will also be difficult, if not impossible, to keep up the necessary supply to the High Level Pumping Station at times when the Reservoir may be shut off for cleaning, repairs or other purposes. In fact, it is quite within the range of possibility, and even probability, that in the event of the lake falling to a lower level than usual, the existing conduits may not yield sufficient water to meet the ordinary demands of the citizens, especially in very hot or extremely cold weather.

#### SIX FOOT STEEL CONDUIT IN THE LAKE.

The necessary appropriation for replacing the 6-ft. wooden pipe, between the Shore Crib and Bell buoy, having been provided, tenders were called for the supply and delivery of the necessary steel pipe, tanks and connections. The Bertram Engine Works obtained the contract for the manufacture of the pipe; the contract for the connecting pipes, tanks and gates was awarded to the John Perkins Co., and a contract was awarded to the Collins Bay Rafting and Forwarding Co. for laying the pipe. The contract for the delivery of the pipe required the whole to be delivered by the 1st of August, and the



tanks, gates and connections by the 31st of August; but owing to the delay and difficulty in obtaining skilled workmen, the final delivery of the pipe was not completed until the 31st of October. The contract called for pipes to be made in lengths of not more than fifty feet, but as the contractor for laying the same was desirous of laying from 300 to 400 feet of pipe at a time, the contractors for the pipe were permitted to construct it in lengths of about 150 feet. For the purpose of laying the pipe, the contractor had on the ground one large twin screw tug (the "Petrel") and a side-wheel steamer (the "Rival"), also a large barge fitted with a double pile driver and derrick, air compressor, 10-in. centrifugal pump and force pump, also ten steel pontoons, 50 ft. x 6 ft. diameter, including the necessary tackle for lowering the pipe into position.

#### ISLAND WATER WORKS.

The Council having adopted the plan for a domestic supply only on Toronto Island, at an estimated cost of \$15,000, contracts were awarded as follows:

The Northey Mfg. Co. obtained the contract for a half million gallon pumping engine, boiler, etc. The pipes were supplied by the St. Lawrence Foundry Co., of this City, while the buildings for the Pumping Station were constructed by the Department, by day labor. The pipes were also laid by the Department. The work was finally completed and water turned on on the 10th June.

For further particulars in connection with Water Works matters, I beg to refer to the report of the Assistant Engineer on Water Works Construction, etc., attached hereto.

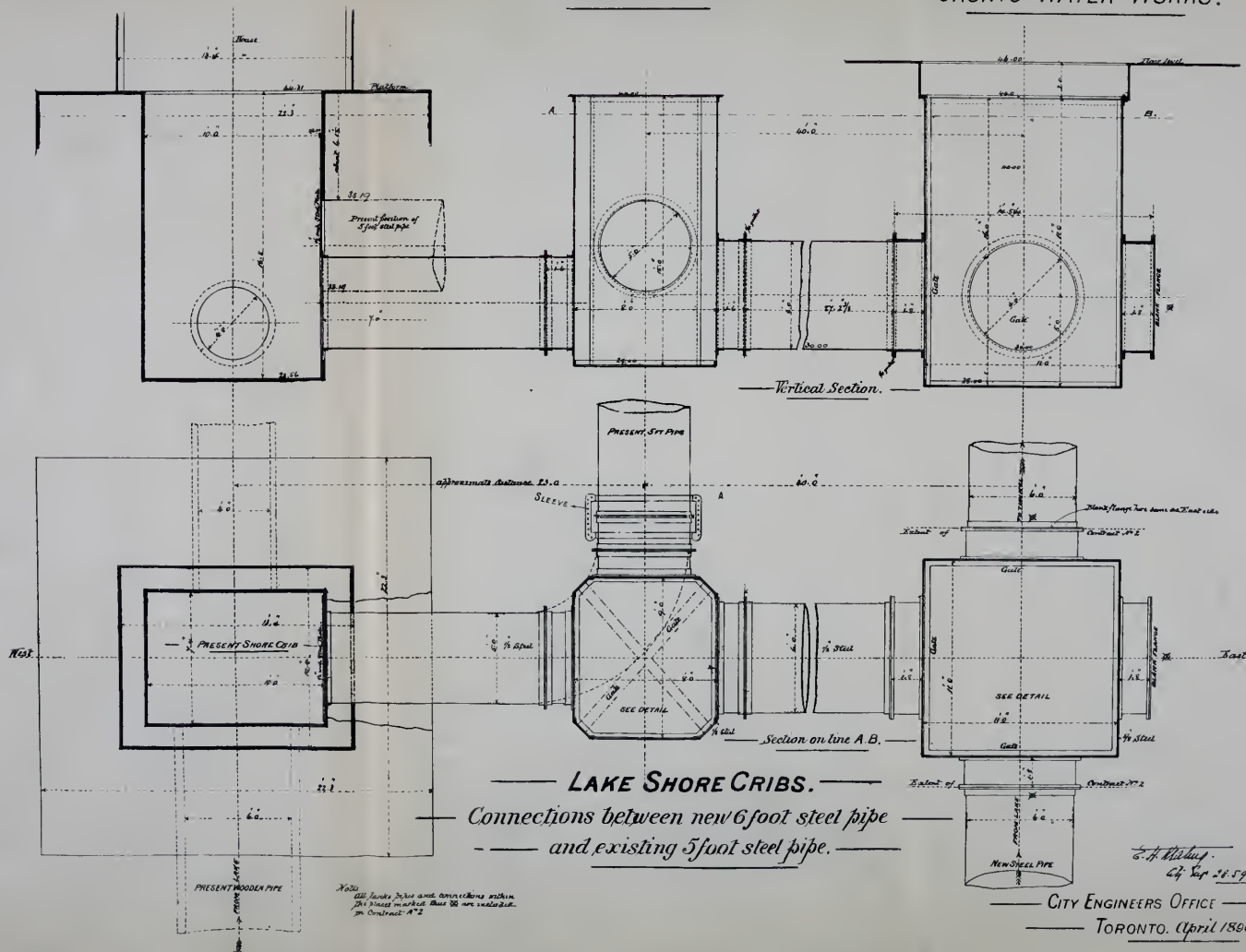
Respectfully submitted,

E. H. KEATING,

*City Engineer.*

TORONTO WATER WORKS.—

TORONTO WATER WORKS.—



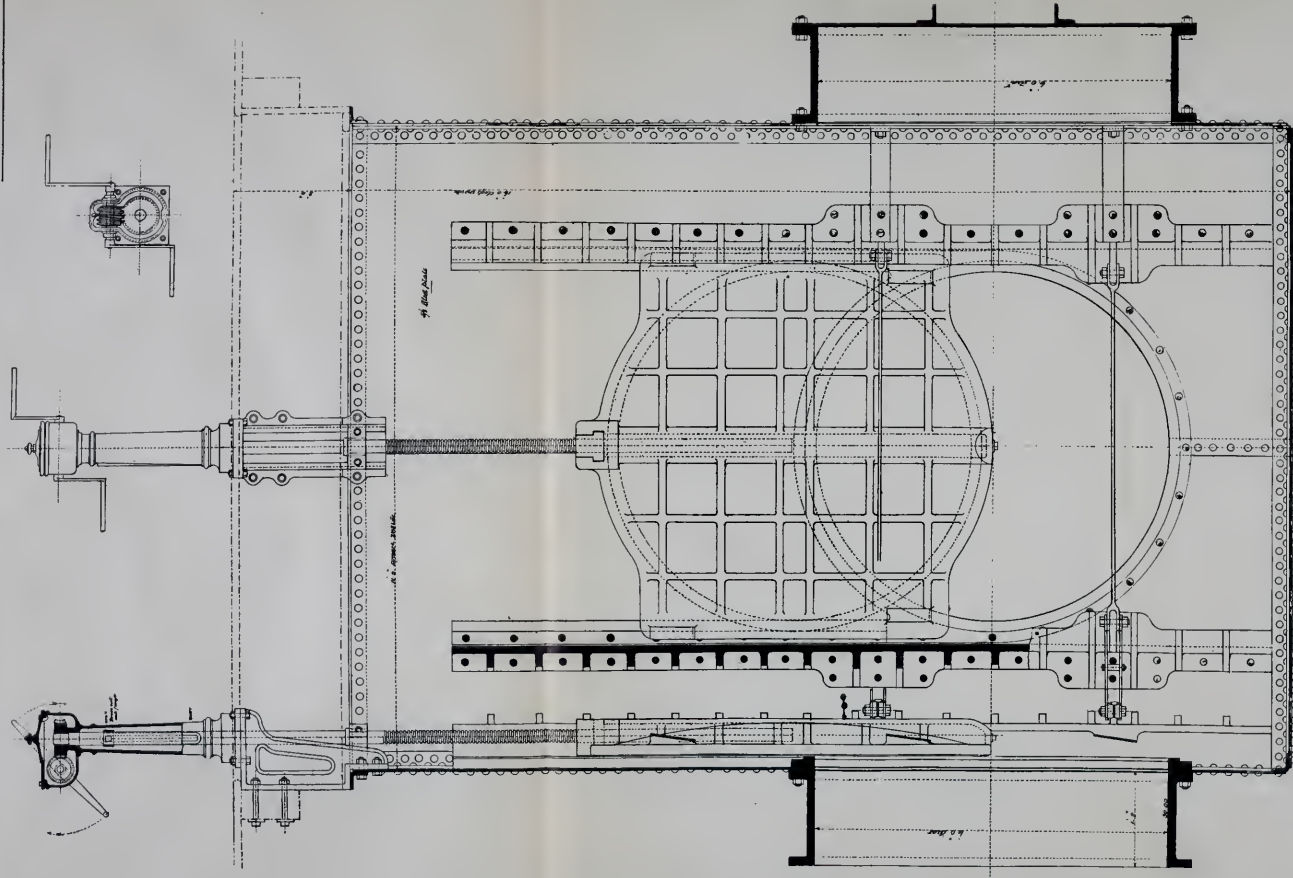
*LAKE SHORE CRIBS.*

Connections between new 6 foot steel pipe  
- — — — — and existing 5 foot steel pipe. — — — — —

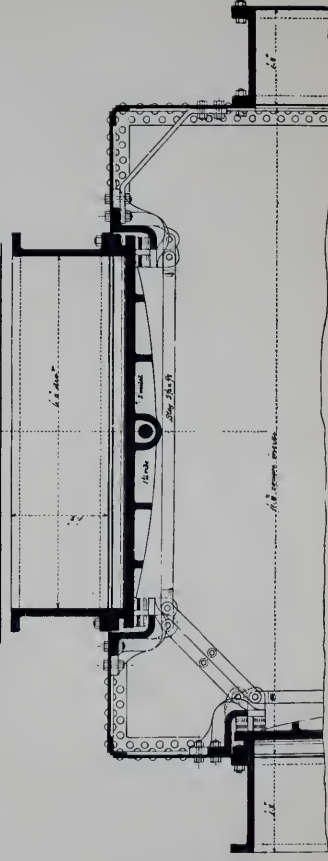
— CITY ENGINEERS OFFICE —  
— TORONTO. April 1896 —







— DETAILS OF NEW GATE TANK AT SHORE CRIB —







# Report of the Assistant Engineer on Water Works Construction, Distribution and Maintenance.

CITY ENGINEER'S DEPT.,  
Toronto, December 31st, 1896.

E. H. KEATING, ESQ.,  
*City Engineer, Toronto.*

DEAR SIR,—I beg herewith to submit my report for this branch of the Works Department for the year ending 31st December, 1896, as follows :

## DISTRIBUTION.

There was laid this year, exclusive of pipes for the Island Water Works :

	589 feet of 12-inch main.
3,014	" 6 " "
406	" 4 " "

Stop valves put in during the year :

6	.....	12-inch valves.
26	.....	6 " "
9	.....	4 " "
3	.....	3 " "

Also 1 6-inch check valve; 25 additional hydrants have been placed on the street, and 2 hydrants on private property, making a total of 249.627 miles of mains, 2,126 stop valves, 67 check valves and 2,950 hydrants. Three hydrants were taken up. The attached schedules, Nos. 11, 12 and 13, give details as to sizes and locations.

The number of services put in this year was 386, particulars of which are found in schedule No. 14 hereto attached. The number of leaks on mains this year was 42, or one to each 2.2 miles of main. The total cost of repairs to same, exclusive of asphalt roadway repairs, was \$821.09, or \$3.29 per mile of main, averaging \$7.33 per leak.

Schedule No. 18 gives the total number of leaks on the different sizes of mains, together with a statement of various other work done by the maintenance of distribution branch of the Department.

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### METER AND MACHINE SHOP.

A large amount of work was done this year in replacing worn-out meters with the new Siemens & Adamson meter, purchased over a year ago. A great number of the meters removed did not register the quantity of water passing through them by from 40 to 50, and sometimes 60 per cent. The meters removed are being put in repair as opportunity allows.

The drinking fountains and horse troughs were in running order (with two exceptions) about a month earlier than usual. The combined drinking fountain and horse trough erected at the corner of Bathurst and Queen Streets, has run all winter without giving any trouble. An improved combined trough and fountain, designed by Mr. Williams, is now in course of construction.

In addition to the regular work of the shop, a large amount of repairs and machine work has been performed for the High Level Pumping Station, Main Pumping Station, Valve and Hydrant Department, Reservoir, and Lombard Street branch of the Distribution Department, the men, on several occasions, having to work all night on work for the Main Pumping Station.

Schedules Nos. 15, 16, 17 and 18 give full particulars as to number of meters placed, renewed and repaired.

### VALVE AND HYDRANT SHOP.

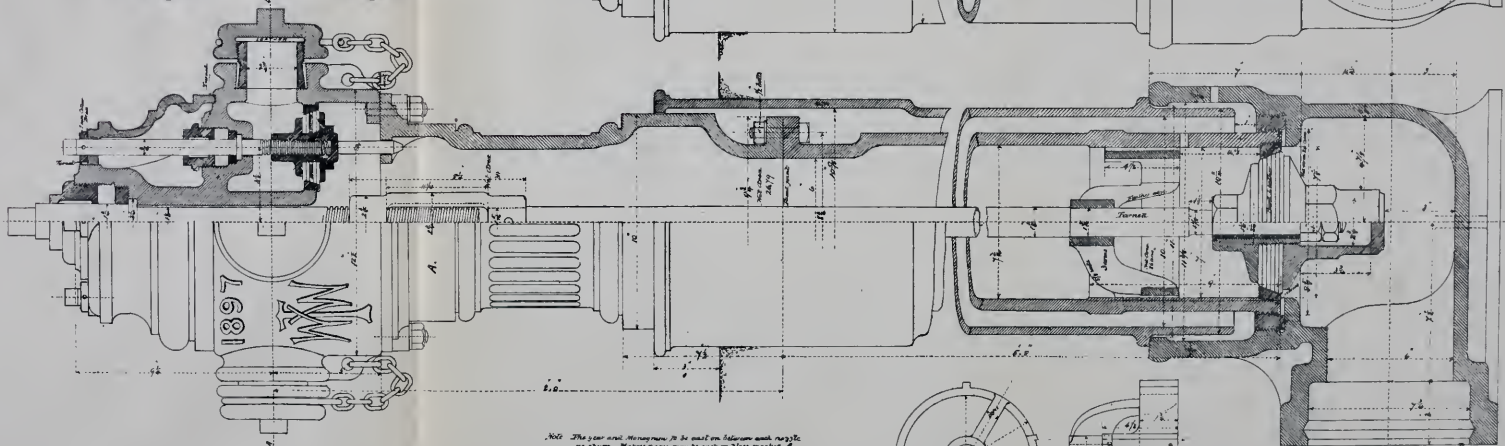
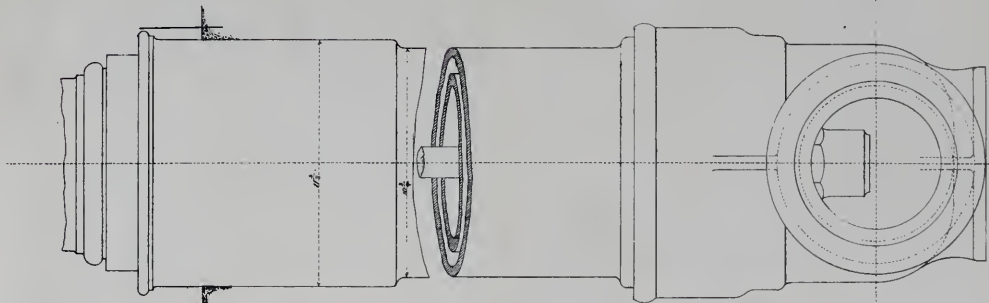
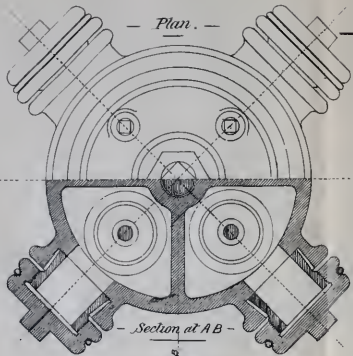
The work of this Department consists in the examination, care of, testing and repairing of all valves and hydrants and the testing of all special castings, when required.

Some 297 hydrant frost jackets, heaved by frost, were lowered and 35 frost jackets broken were replaced with short tops; 76 two-way were replaced with three-way hydrants; 49 damaged hydrants were replaced with new or repaired ones; there were 256 hydrants frozen, requiring thawing or blowing out and pumping; 848 hydrants were pumped, packed and oiled; 28,895 hydrants were inspected, being 9 times for each; 2 four-way hydrants were rebuilt and jacketed; 84 screw valves were tested and 33 repaired.

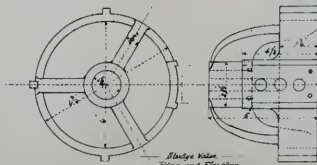
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1897

-TORONTO WATER WORKS.



Note The gear and Herringbone to be cast on bottom and rigid as shown. Makers name may be cast on place marked A. The lower end of the Hydrameter to be divided for quantities from bottom as shown. The parts under leather of dredge valves to be plain perfectly smooth, the grooves for dredge valve guides are to be flamed out by machine and not cast in.



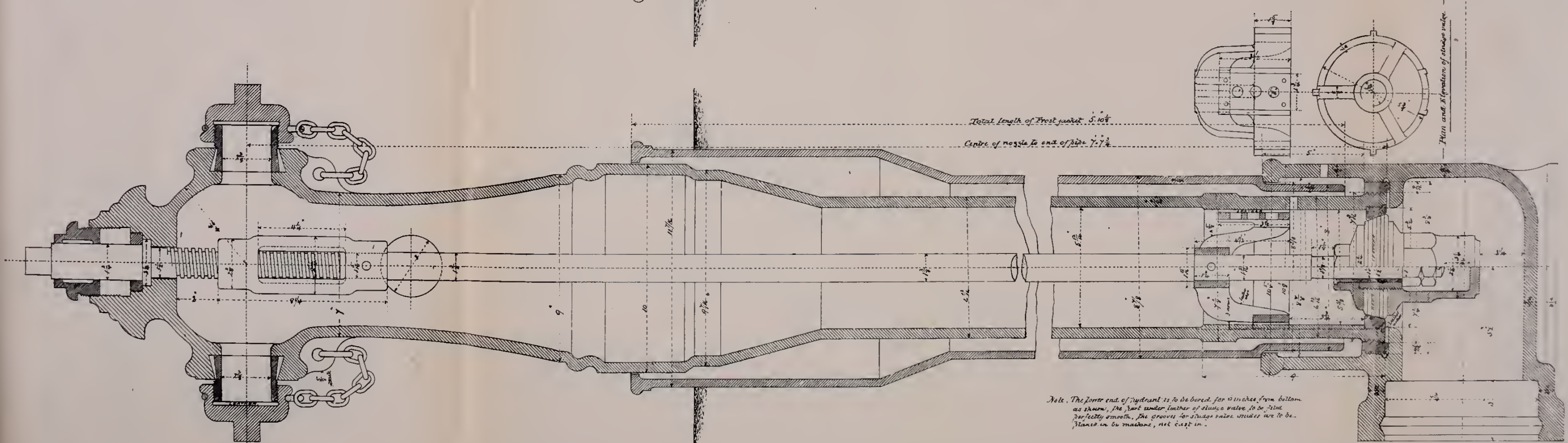
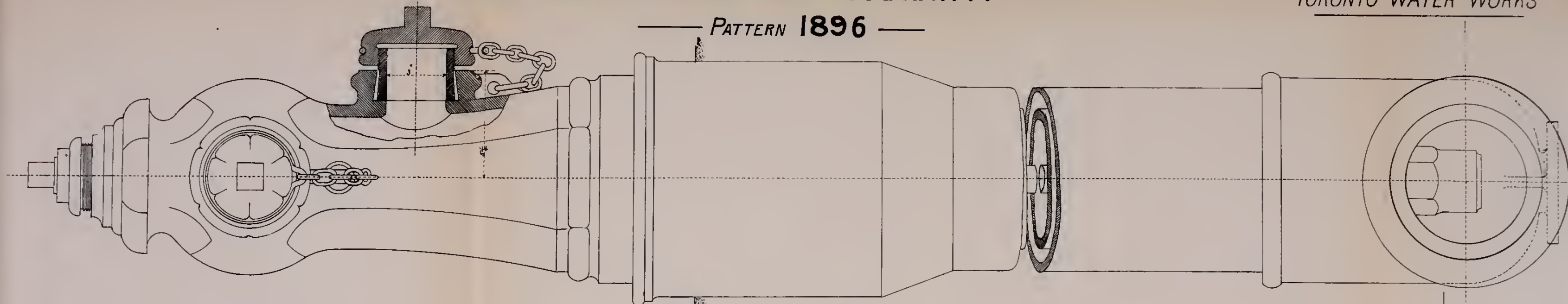
TORONTO, Jan<sup>y</sup> 1.91



# TWO AND — THREE-WAY HYDRANT.

TORONTO WATER WORKS

PATTERN 1896



CITY ENGINEERS OFFICE  
TORONTO. Dec 21<sup>st</sup> 96

The following list gives details of year's work :

#### HYDRANT REPAIRS, ETC.

New valves .....	65
New joint rings .....	76
Hydrants set with bar and chain.....	27
"    replaced with repaired hydrants ..	49
"    "    three-way " .....	76
Nozzles caulked .....	141
New caps.....	27
Cap leathers.....	208
New jackets .....	3
New screws.....	1
Jackets lowered .....	397
"    cut and replaced with short top.....	35
Chain rings .....	62
Hydrants pumped, packed and oiled .....	848
"    frozen, blown out, pumped, packed and oiled..	246
"    "    fired and blown out, "    " ..	31
"    "    thawed and pumped with boiler.....	79
"    cleaned, repaired, tested and painted .....	100
"    tested .....	73
Foot pipes .....	95
Hydrants inspected .....	28,895
"    jacketed and tested complete.....	42
4-way hydrants rebuilt, jacketed and tested .....	2

#### VALVE REPAIRS, ETC.

6-inch valves tested.....	64
4 " " " .....	20
Valves repaired .....	33
Pinned on and faces on wedges and bodies of 24 and 30-inch valves.	

#### BRASS WORK TESTED.

1-inch screwed nipples tested .....	98
$\frac{3}{4}$ " wiped " " .....	25
1 " " " " .....	27
$\frac{1}{2}$ " " " " .....	26
$\frac{3}{4}$ " single cocks tested .....	116
" " " " .....	308
$\frac{1}{2}$ " " " " .....	203
$\frac{3}{8}$ " " " " .....	154
x 12 x 12 double cocks tested .....	206
1 x $\frac{3}{4}$ x $\frac{3}{4}$ " " " .....	20
$\frac{3}{4}$ x $\frac{1}{2}$ x $\frac{3}{8}$ " " " .....	20



$\frac{3}{4}$ -inch wiped cocks tested .....	25
$\frac{7}{8}$ " " double cocks tested .....	25
$\frac{1}{2}$ " " " " " .....	66
2 " Peet valves tested .....	19
1 " " " " .....	19
$\frac{3}{4}$ " " " " .....	15
$1\frac{1}{2}$ " valves tested .....	6
$\frac{1}{2}$ " " " .....	11
$\frac{1}{2}$ " " " .....	8
	<hr/>
Mains blown out .....	666
10-inch pipe tested .....	5

A new design for 4-way hydrants has been prepared with the main valve and four small valves for nozzles of similar construction to our standard form. Drawings of both the 3 and 4-way hydrants are attached.

In addition to this work some 666 mains have been blown out through the hydrant jacket, this being done by removing the hydrant by unscrewing same from foot pipe, by which means a full discharge of the 6-inch pipe is obtained.

#### HIGH LEVEL PUMPING STATION.

The work of this Station continues satisfactorily, but some difficulty is experienced at times in keeping up a fire pressure above 65 lbs., the engines having to be run above their contract speed

Should the consumption continue to increase, it will be necessary to add to the pumping power at this Station, if a fire pressure is to be obtained at all times.

The only change to be noted was the substitution of slack coal for anthracite, which reduces, by about \$1,000, the cost of running this Station, per annum. It is proposed to place the Jones Underfeed Mechanical Stoker under two of the boilers, on a guarantee of a saving of ten per cent. in duty over the slack coal under ordinary running conditions. This will still further reduce the annual cost of running.

The spring freshet passed off this year without doing any damage to the creek through the Water Works property. The road through the grounds, though, is badly in need of repairs.

Further particulars for this Station will be found in the report of Mr. Heal, Chief Engineer of the High Level Station.

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ROSEHILL RESERVOIR AND PARK.

On the 21st September, the water in the Reservoir having been drawn down to 2 feet 8 inches in depth, the 24-in. valve at the entrance to the grounds was closed and the 12-in. valve on the discharge pipe to creek, opened to take off the remaining 2 feet 8 inches, after which the bottom was cleaned and preparations made for concreting a further portion of the bottom. The Council having increased the appropriation from \$2,000 to \$7,000, a much larger area was covered, amounting to 9,148 square yards; this, together with what had been previously done, making a total of 13,081 square yards. The total area of the bottom is 34,700 square yards; therefore, a little more than one-third has so far been done. This work was completed on the 14th October, and on October 15th the 24-in. valve was opened and water again admitted.

Considerable repairs were made to the culverts, drains and creek. Two substantial stone dams and bridge abutments were constructed at the creek. These dams were formerly built of wood, and were annually destroyed by the spring freshets and the breaking of dams above the Water Works property. The road around the east side of the Reservoir has had a coating of metal (granite chips).

The grounds have been kept in good order.

## STABLES.

The wages of drivers and foreman, five in all, amounted to \$2,418; feed cost \$714.60, or 28 cents per horse per day; shoeing, veterinary surgeon, harness and wagon repairs, \$270.42, or a total of \$3,403.10.

All of the horses, men, etc., have been fully employed.

## STOREHOUSE.

In this department is kept on hand all necessary supplies for the various departments. The stock on hand at end of year has been checked and found correct. The blacksmith and helper have been steadily occupied.

The roof of this building is very much in need of repairs, especially over the Meter and Machine Shop, where it leaks very badly.

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CONDUITS.

The cracked flange on the 5-ft. pipe, which was not repaired last fall, owing to the lateness of the season, was satisfactorily covered by a sleeve immediately after the ice left the bay. This flange is on the north end of the first pipe north of manhole No. 1, and had over it about three feet of sand, which had to be removed before the repairs could be completed. The Island basin has been of very great service in enabling the supply of water for the City to be kept up during low stages of the lake.

## ANCHORING.

Both contracts for anchoring the conduits, let last year, were completed this year. It was found, however, in the contract for filling over the 5-ft. pipe, south of manhole No. 1, that owing to its exposed position, the filling would probably be washed away, and it was decided to take that portion of the contract between the first and second manholes off the contractor's hands, and obtain tenders for placing close piling on each side of the pipe, the space between piles being filled with sand. This work was secured by Messrs. McNamee & Simpson for \$4,890, and completed on the 12th of December, at a cost of \$4,925.69, the distance covered being 860 feet.

Careful measurements have been taken each week of the accumulation of sand in the 6-ft. wooden, 5-ft. steel and 4-ft. wooden conduits, between Hanlan's crib and the lake shore. From January to May, the sand increased in the 6-ft. pipe between the shore crib and lake shore from 1 to 14 inches. It was then pumped out, after which, from May till the end of the year, no further increase occurred. In the 5-ft. and 4-ft. pipes, between the Island basin and the shore crib, the greatest amount of sand noticed was 4 inches. Measurements were also taken of the head consumed in delivering the daily supply of water at the shore crib, Island basin, Hanlan's crib and the Engine House well. At the shore crib and Hanlan's crib these were taken at 9 o'clock each morning, while at the Island basin and Engine House well they were taken every three hours, day and night, the height of water in the lake being taken on Water Works gauge every three hours, day and night, as well. These have all been carefully tabulated. A reference to the records shows that the lake reached its lowest level on the 26th day of December, when it stood at 2 feet below zero, and its highest on the 28th of July, when it

stood at  $10\frac{1}{2}$  inches above zero. The greatest depth to which the water was drawn down in the basin was 2 feet 2 inches below zero; at Hanlan's crib, 3 feet 5 inches below, and at the Engine House well, 6 feet below zero, the water in the lake being on that date 1 foot 1 inch below zero, while the maximum pressure on the discharging mains of pumps for that day (6th November), between 9 a.m. and 4 p.m., was 90 to 95 lbs. per square inch, the safe limit fixed at Hanlan's crib, or that which causes the alarm bell to ring, being 3 feet  $5\frac{1}{2}$  inches below zero.

The conclusion arrived at is, that should the lake fall much below low water of this year and the consumption increase, it will not be possible to keep a fire pressure on the mains of the low level district, and also difficult, if not impossible, to keep up the supply to the High Level Pumping Station at times when the Reservoir may be shut off for cleaning, repairing, etc.

#### SIX-FOOT STEEL CONDUIT INTO LAKE.

The necessary money for replacing the present six-foot wooden pipe, between the shore crib and the bell buoy crib, having been provided, tenders were called for the supply and delivery of the necessary pipe and flexible joints, together with the requisite tanks and connections. The Bertram Engine Works were awarded the contract for supplying 2,350 feet of 6-foot steel pipe and three flexible joints, at \$12 per foot for  $\frac{1}{2}$ -inch 6-foot steel pipe, and \$13.20 per foot for  $\frac{3}{8}$ -inch 6-foot steel pipe, and \$400 for each flexible joint. The contract for the connecting pipes, tanks and gates was obtained by the John Perkins Co. at a cost of \$5,345. Plans of the pipes, tanks, gates, etc., are appended hereto. A contract was also awarded to the Collins Bay Rafting and Forwarding Co. for laying the pipe for the bulk sum of \$24,500, the work to be completed by the 1st day of December, 1896. The contract for delivery of the pipes required the whole of the pipes to be delivered by the 1st of August, and the tanks, gates and connections by the 30th day of August. Owing to the large amount of work on hand and the difficulty of obtaining the requisite workmen, it was not until August that the first pipe was made, and the final delivery was made on the 31st day of October. The contract called for the construction of the pipe in lengths of not more than 50 feet, but as the contractor for laying same was desirous of laying from 300 to 400 feet of pipe at a stretch,



the contractors for delivery were permitted to construct it in lengths of about 150 feet. As fast as these were made they were delivered at the Bertram Co.'s dock on the wharf, from which the steamer Corona was launched. There they were connected up in long lengths and tested to 30 lbs. per square inch, as provided in the contract. The gaskets used were of lead of the form and dimensions shown on the drawings. In the case of the  $\frac{1}{2}$ -inch pipe, these pipes were made in lengths of about 45 feet and bolted together on the dock. From there they were launched from the wharf above referred to immediately after suitable bulkheads had been placed on each end of the pipe to prevent it sinking.

Although the work of testing was to be done by the Bertram Co., the contractor for laying, in consideration of the permission given him to lay in long lengths, consented to do this at his own expense. The flexible joints were delivered at the Water Works dock and tested by the City, the pressure being run up to 50 lbs. per square inch, under which they proved perfectly tight. The faces of all flanges on the pipe and flexibles were machine faced, the pipe being caulked inside and out before receiving the coating of black Japan varnish specified.

#### LAYING.

For this purpose the contractor had on the ground one large twin screw tug called the Petrel, and one side wheel steamer named the Rival, also one large barge fitted with a double pile-driver derrick air compressor, one 10-inch centrifugal pump and force pump; there were also 10 or 12 steel pontoons 50 feet long by 8 feet diameter, including necessary tackle, with which he intends lowering the pipe. His first work consisted in dredging a trench from the vicinity of the bell buoy towards shore by means of the twin screws of the Petrel; this was effected by carrying a large hawser ashore on the line of the proposed trench and fastening it to an anchorage there, then going ahead with the screws, by which means a very strong current was formed, which scoured out the sand to the requisite depth, making quite a large and deep trench, with very flat side slopes. This plan worked very well until the tug came within about 300 feet of the shore, where the water was so shallow, and the bank before the screws so high, that the material could not disperse to the sides, and consequently commenced filling in behind the tug. As soon as this was discovered the tug was taken off, and the barge with the



sand pump brought up to deepen the trench, but owing to the rigid connections and the swell on the lake it did not prove successful. The next method adopted was to work the clamshell, which was erected in the meantime on the shore out to meet the trench by constructing, out of the material from the trench, an embankment on which to place the track for the clam. By this time the season had advanced so far as to make it impossible to lay any pipe at least in the lake. The clamshell was therefore run back and kept at work excavating a trench for the pipe on the Island until the 5th day of December, when the work was shut down for the winter.

#### ISLAND WATER WORKS.

The Council having decided to adopt the plan proposed for a domestic supply only, at an estimated cost of \$15,000, contracts were prepared on this basis, and advantage taken of the ice on the Bay to deliver as much of the pipe, etc., as possible, before it broke up in the spring. The Northey Mfg. Co. obtained the contract for supplying a half million gallon pumping engine, the necessary boiler, pump, etc. The engine is compound condensing, supplied with steam at boiler pressure of 125 lbs., the coal used being slack, similar to that in use at the Main Pumping Station. The pipes were supplied by the St. Lawrence Foundry Co. of this City, the foundations and buildings being constructed by the City by day labor. These pipes were also laid by day labor, under Mr. Foley, general foreman for this department of the work. Pipe laying was begun on the 14th April, and by May 7th the pipes were all laid, the engine and boiler foundations completed, and the chimney stack nearly completed. Some 200 services were put in and a number of drinking fountains erected. Owing to the contractor's delay in supplying the boiler on time, and some alterations which were required to the air pump, water was not turned on until the 10th of June.

A thousand feet of pipe more than was originally contemplated was laid, and some additional work performed in the Park, whereby the total cost of the work was increased to \$15,895.69 or \$895.69 more than estimated.

From the time of starting the pumps, with the exception of one or two stoppages of a couple of hours each, water was supplied continuously to the end of the season, October 15th. For the first two or three weeks some complaints were received of a tarry taste to the

water, but a few blowings out rectified this, the service thereafter proving satisfactory.

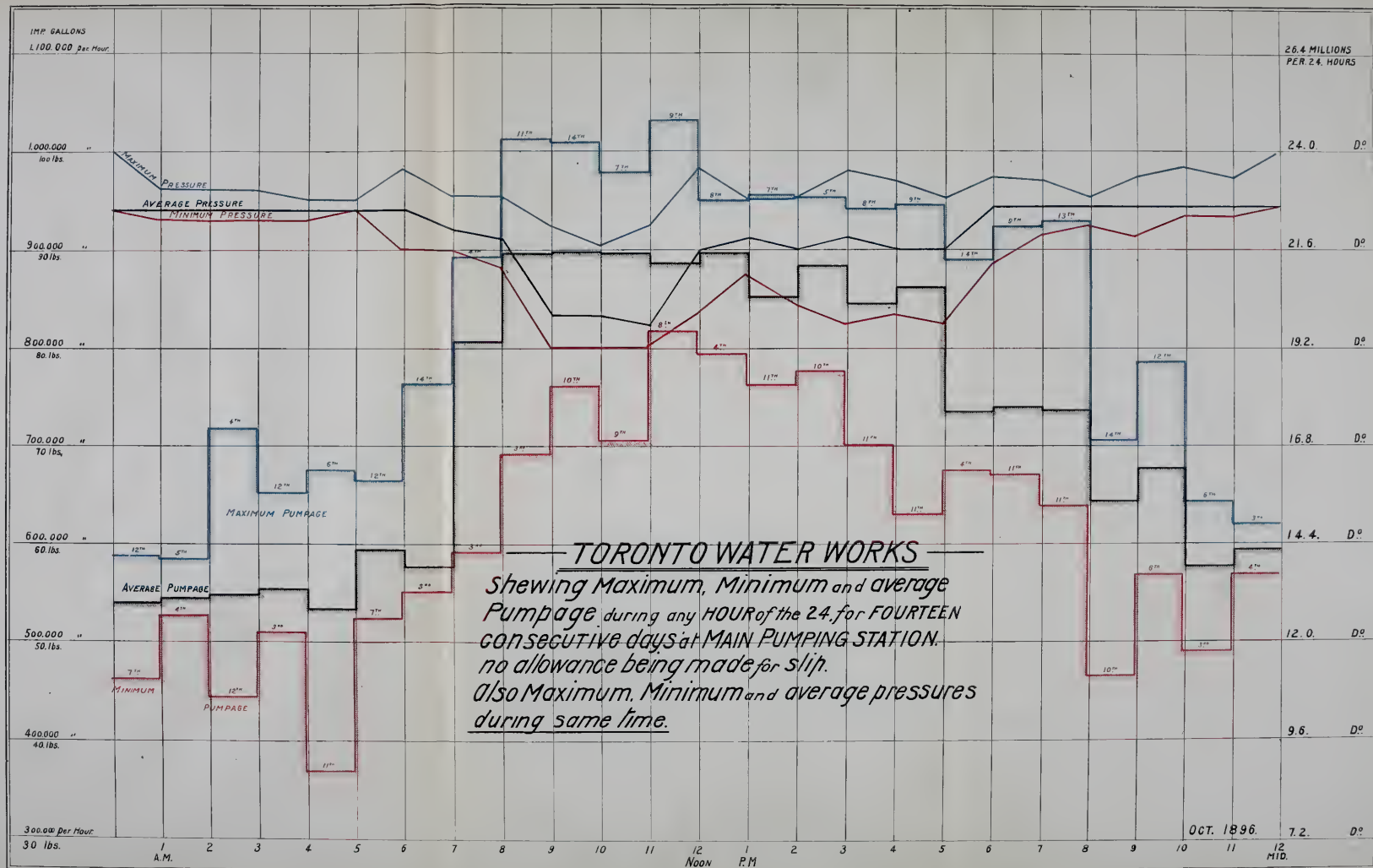
The total amount of pipe laid was :

24 feet of 10-inch pipe.				
9,156	"	6	"	"
10,680	"	4	"	"
502	"	2	"	"
6 6-inch valves.				
13	4	"	"	"
2	6	"	check valves.	
160 services.				

The engine house is located at a point about 30 feet west of the 6-foot wooden conduit and some 250 feet back from the lake. The supply is obtained from the 6-foot conduit, the suction pipe entering a manhole on the 6-foot wooden pipe at this point. Provision has been made for connecting the suction pipe with the new 6-foot steel pipe, which is located some 30 or 40 feet east of the present conduit, as soon as it is laid, as it is proposed to close the outlet of the 6-foot wooden conduit at the shore crib, leaving it dead as soon as water can be drawn from the new steel conduit.

#### GENERAL.

There is very little to report in reference to the distribution through the City. The mains have been blown out not less than four times throughout the City. A number of additional valves for this work were put in this year. Schedule No. 20 is a return showing location of all blow-out valves in the City. In order to ascertain some cause for the very large per capita consumption (about 100 gallons per head per day) records were kept of the hourly pumping at the Main Pumping Station for each 24 hours between the 3rd and 14th of October, inclusive, during which time the Reservoir was empty. The results are shown on the attached diagram, an inspection of which shows that between the hours of 1 a.m. and 4 p.m., an average of 500,000 gallons of water was being pumped per hour, or at the rate of 12,000,000 gallons per 24 hours, after deducting 10 per cent. for slip. It is probable that not more, if as much as 100,000 per hour, was legitimately used during this period, the remaining 400,000 per hour probably going to waste, which is at the rate of





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9,600,000 gallons per day of 24 hours, or fully 50 per cent. of water pumped. It would appear from this that a very large annual saving in expense might be effected if some systematic and persistent effort were made to remedy this.

Yours obediently,

C. L. FELLOWES,

*Assistant Engineer in Charge.*



# REPORT OF CHIEF ENGINEER OF MAIN PUMPING STATION.

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MAIN PUMPING STATION,  
Toronto, December 31st, 1896.

E. H. KEATING, ESQ.,  
*City Engineer.*

DEAR SIR,—I beg herewith to submit to you the annual report of this pumping station for the year 1896.

During the past year the two new Blake pumping engines Nos. 4 and 5, with the exception of a few accidents that occurred, have been running steadily, keeping up the water supply.

The old plant, which consists of two low duty type Worthington engines and one Inglis & Hunter engine, have done very little work during the year. But they are all in good working order; the boilers are sound and clean, also the boiler feed pumps are all in good condition.

I beg to recommend to increase the required pumping plant here, by another ten million high duty pumping engine, as the old plant, when required to use them, are too expensive to operate.

Below, I submit to you a summary of repairs and other work done during the year.

## SUMMARY OF REPAIRS TO ENGINE No. 1.

1. Valve stems all packed between high and low pressure steam chests; new collar put on gland; overhauled air-pumps; replaced new valves, spindles and seats where required.

2. Examined main pump valves and seats, replaced them by new valves, spindles and seats where required.

3. Made new joints to steam chest; new joints on jacket pipes. This completes the repairs to engine No. 1.

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SUMMARY OF REPAIRS TO ENGINE No. 2.

1. Overhauled air-pumps ; replaced new valves, spindles and seats where required ; examined air pump rod brasses : closed up straps, and straightened up gib in key.

2. Lined up brasses of air-pump trunk rods ; air-pumps all newly painted ; examined main pump valves and seats ; replaced them by new valves, spindles and seats where required ; also packed air-pump buckets.

3. Valve stems all packed between high and low pressure steam chests, which completes the repairs to engine No. 2.

## SUMMARY OF REPAIRS TO ENGINE No. 3.

1. New liners put in main pump bearing ; refitted brasses on main pump connection ; made new joints to steam cylinder heads ; examined steam pistons and exhaust valves ; made two new keys and fitted same in main pump rod.

2. Overhauled all main pump bearings of engine ; refitted brasses on crank pins and cross heads ; valve seats of main pumps all taken out, and replaced by one new set of valves.

3. New  $2\frac{1}{2}$ -inch nuts for holding down bolts of bed plates of engine.

## SUMMARY OF REPAIRS TO FOUR BOILERS OF BATTERY No. 1.

1. New rubber gaskets to joints of man-hole covers ; new joints to steam pipes, safety and stop valves ; grate bars of furnaces all examined.

2. Globe valves, asbestos and blow-off cocks and plug cocks all examined ; tubes all thoroughly cleaned out, which completes the repairs to No. 1 boilers.

## SUMMARY OF REPAIRS TO FOUR BOILERS OF BATTERY No. 2.

1. Examined grate bars of furnaces ; replaced two new grate bars ; new joints to steam pipes, safety and stop valves.

2. New rubber gaskets to joints of man hole covers ; two new baffle plates to furnace doors.

3. Globe valves, asbestos and blow-off cocks, and plug cocks all examined; tubes all thoroughly cleaned out, and all appurtenances to boilers are in good condition. This completes the repairs to No. 2 boilers.

#### SUMMARY OF REPAIRS TO FIVE BOILERS OF BATTERY No. 3.

1. Examined grate bars of furnaces; new joints made to steam pipes, safety and stop valves.

2. Replaced one new baffle plate to furnace door, new rubber gaskets to joint of man-hole covers.

3. Globe valves, asbestos and blow-off cocks, and plug cocks all examined and repaired; tubes all thoroughly cleaned out, and the boilers are all sound and clean and are in first-class condition.

#### SUMMARY OF REPAIRS TO MAIN BOILER FEED PUMP.

1. Pump rods and plungers taken out and trued up in lathe.

2. New teeth put in mortice wheel of feed pump; all valves taken out and faced up, which completes the repairs to main boiler feed pump.

#### SUMMARY OF REPAIRS TO ENGINES Nos. 4 AND 5.

On Feb. 27th, the eccentric rod on low pressure side of engine No. 4 broke. Repairs were made by being replaced by a new one, and engine was again started, running on Feb. 28th.

On April 15th, the plungers and sleeves of main pumps of engine No. 4 were renewed, the old ones being very badly worn by sand. All valves and spindles taken out and examined; new ones replaced where required. Work was completed on April 20th, when engine was again started running.

On April 22nd, work was commenced in renewing the plungers and sleeves of engine No. 5. Valves all cleaned; springs replaced where required. Work was completed on April 25th.

On June 8th, the main pin on high pressure side of engine No. 4 was found loose. It was taken out and replaced by a new one, when engine was again started running.

On July 15th, the main pin on low pressure side of engine No. 4 was found loose. It was taken out and replaced by a new one, when engine was again started running.

On Nov. 12th, the bridges in exhaust port of high pressure cylinder of engine No. 5 cracked, also a slight flaw was found at each end of port in main body of back section. Repairs were made by putting in four heavy studs through the ports. Work was completed, and engine was started running again on Nov. 16th.

On Dec. 9th, the main pin on high pressure side of engine No. 4 was found loose. It was taken out, and replaced by a new one. Engine was again started running on Dec. 12th.

#### SUMMARY OF WORK DONE TO AND ABOUT OLD ENGINE HOUSE.

1. The walls in cellar of old engine house have been whitewashed during the year.

2. The steam pipes and connections in cellar of old engine house have been newly painted.

3. The sides and back walls of batteries of boilers Nos. 1, 2 and 3 have been whitewashed.

4. The walls of boiler-houses Nos. 1, 2 and 3 have been whitewashed during the year.

5. The steam pipes, domes and safety valves, also the fronts of boilers Nos. 1, 2 and 3, have been newly painted.

6. A small addition was built adjoining work shop, and is utilized as a storehouse to keep all necessary material in.

7. The cover of 4-way chamber, also cover to tank of valve connections of the 4-foot and 5-foot conduit pipes, have been painted.

8. The roof of old engine house, which was leaking badly in many places, has been repaired during the year.

9. The iron smoke stack, running from battery of boiler No. 3 to chimney, has been painted.

10. The iron fence and gate posts in front of Water Works property have been painted.

11. The boiler feed pipes, blow-off pipes and guides to batteries of boilers Nos. 1, 2 and 3 have been painted.

12. A new 12-inch eduction pipe, connecting Nos. 1 and 2 engines was put in place of two such pipes, which interfered with the placing of a new screen in pumping well.

13. The cresting on top of chimney of old engine house, which was broken in several places, has been renewed with new castings, which are all thoroughly bolted and fastened together, giving it a more attractive appearance.

#### SUMMARY OF WORK DONE TO AND ABOUT NEW ENGINE HOUSE.

1. Necessary running repairs to boilers, attachments and furnaces have been attended to, and they are all in perfect order.

2. The walls and ceiling of boiler houses Nos. 4 and 5 have been newly whitewashed.

3. The valves and all steam pipe connections on top of Nos. 4 and 5 boilers, have been newly painted.

4. The roof of new engine house, which was leaking in several places, has been repaired, and is now in good condition.

5. The blow-off pipes and guides of batteries of boilers Nos. 4 and 5 have been newly painted.

6. The boiler feed pumps of engines Nos. 4 and 5 have been newly painted.

7. The feed pumps, air pumps and all appurtenances to engines are in good working order.

8. The boiler feed pump belonging to engine No. 5 was removed from cellar and erected in new engine room. It is now in a more suitable place, and can also be better attended to.

9. A new brick lavatory was built adjoining No 4 boiler house.

10. Throughout the season, the grass on the grounds was cut and the roadways cleaned, and some ornamental trees planted, with the usual supply of flowers.

Yours respectfully,

ROBERT PINK,

*Chief Engineer at Main Pumping Station.*



# REPORT OF THE ENGINEER IN CHARGE OF THE HIGH LEVEL PUMPING STATION.

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HIGH LEVEL STATION,  
Toronto, December 31st, 1896.

E. H. KEATING, Esq.,  
*City Engineer.*

DEAR SIR,—I beg to submit the following report of the works under my charge :

## HIGH LEVEL STATION.

All needed renewals and adjustments were made to engines and auxiliaries at the commencement of the year; since that time no break has occurred.

The plungers of main pumps were renewed, valves examined and cleaned; no break or mishap has occurred during the year. The connection applied for determining the slip has proved of great value. By its use the condition of valves and plungers can be ascertained at any time.

The boilers are sound and clean; no expense has been incurred for repairs since their installation. A large saving has been effected by the use of bituminous screenings in place of anthracite coal.

There is a marked decrease in the quantity of sand passing through pumps; it is only noticeable after a sharp speeding for fire duty, evidently some of the coarser particles remaining in suction main or connections.

Great difficulty is experienced in maintaining an effective fire pressure on the district during the day; frequently not higher than sixty pounds can be reached, and this only by increasing the speed of pumps twenty-five per cent. over their rated capacity. This difficulty can be overcome by increasing the pumping power either by the addition of an engine uniform with present plant or by installing a vertical compound of the same capacity. In the former case, an addition to the buildings would be necessary, and would be somewhat expensive, while in the latter case the plant could be installed in the present engine room. The present boiler power is ample in either case.

## ISLAND PUMPING STATION.

The installation of this plant was commenced on May 27th; the pumps were started on June 4th, but did not run continuously until June 10th. From this date water was supplied with trivial intermission during the season.

The work is substantial, and will, with ordinary care, give a satisfactory service for many years without incurring any expense for repairs.

Yours faithfully,

C. HEAL,

*Engineer in Charge.*

## APPENDIX "A."

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### ACCOUNTANT'S STATEMENT.

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CITY ENGINEER'S OFFICE,

December 31st, 1896.

E. H. KEATING, ESQ.,

*City Engineer.*

DEAR SIR,—I attach herewith statement showing the expenditure for the year ending December 31st, 1896, with details of contract work, material and labor on General, Special and Local Improvement Works, marked Appendix "A": also statement of expenditure of the Water Works Branch and details of same to same date, and marked Appendix "B."

Yours truly,

WM. McCARTNEY,

*Accountant.*

For Abstract of Charges see Page	ACCOUNTS.	\$	c.	\$	c.	\$	c.
	GENERAL WORKS.						
63	Bridges, repairs and maintenance.	5,543	45				
64	Culvert cleaning .....	7,023	09				
64	Engineering and expenses.....	28,102	72				
65	General purpose .....	43,626	05				
69	Roadways.....	29,956	91				
74	Sidewalks.....	21,727	04				
75	Street cleaning .....	55,933	14				
76	Street watering .....	36,274	44				
78	Snow cleaning off sidewalks.....	12,202	39				
78	Scavenging .....	57,110	80				
79	Stone and wooden kerbs .....	2,507	11				
79	" " crossings.....	2,347	46				
80	Private drains.....	116	80				
				302,471	40		
	SPECIAL WORKS.						
80	Ashbridge's Bay improvement....	18,869	64				
81	Don River improvement .....	370	52				
81	Bay and Lake Street sidewalks..	74	71				
81	Bridle path .....	608	24				
81	Esplanade agreement.....	458	15				
81	Lake Shore Road sidewalks.....	520	82				
81	" " repairs.....	818	35				
82	Level crossings .....	2,242	51				
82	Public conveniences ...	457	77				
82	Public lavatory .....	3,271	08				
82	Rosedale Valley Road .....	17,381	19				
83	Sand pump .....	14,372	89				
				59,445	87		
84	Railway pavements.....			3,062	00		
	<i>Local Improvement Works:</i>						
85	Pavements .....	75,919	89				
90	Sewers .....	935	00				
90	Sidewalks, wooden.....	12,635	41				
91	" brick .....	415	88				
91	" patent .....	3,247	46				
91	Bridges, extensions and openings	18,588	76				
				111,742	40		
91	Personal and Departmental acc'ts. ....			24,443	91		
	Total.....					501,165	58

DETAILS.	\$	c.	\$	c.	\$	c.
REPAIRS AND MAINTENANCE OF BRIDGES.						
<i>Sherbourne Street.</i>						
75½ gals. paint, \$113.80 ; 2 brushes, 60c. :						
marline, 30c. ....	114	70				
Labor .....	108	83				
			223	53		
<i>Winchester Street.</i>						
5,826 ft. lumber, \$81.15 ; ¾ cord posts,						
\$4.20 ; 600 lbs. nails and spikes,						
\$21.83 .....	107	18				
1 sledge hammer, \$1.70 ; 1 cross bar, \$2 ;						
1 cross-cut saw, \$4.55 .....	8	25				
49 gals. paint, \$53.05 ; 5 gals. boiled oil,						
\$2.70 ; 2 gals. turps, 84c. ....	56	59				
Brush, can and wick, 65c. ; lock, file,						
hinges and bolts, \$9. ....	9	65				
7 gals. coal oil, \$2.10 ; tar paper, hasp and						
staple, \$1.05 .....	3	15				
Contract work, Medler & Arnot .....	1,250	61				
Inspection, \$75 ; labor, \$679.07 .....	754	07				
			2,189	50		
<i>Dundas Street.</i>						
2,120 ft. lumber, \$26.72 ; 150 lbs. nails,						
\$6.10 .....	32	82				
499 lbs. paint, \$117.50 ; 15 gals. boiled						
oil, \$8.10 ; 15 gals. turps, \$6. ....	131	60				
2 gals. dryers, \$3.50 ; 4 paint cans, 80c. ;						
30 brushes, \$24 ; 1 broom, 30c. ....	28	60				
Repairing Wilson's coal scale .....	27	80				
Labor .....	817	75				
			1,038	7		
<i>Eastern Avenue.</i>						
22,669 ft. lumber, \$312.54 ; 335 lbs. nails						
and spikes, \$10.52 .....	323	06				
38 loads macadam, \$50.54 ; 14 castings,						
\$10.50 .....	61	04				
Axe, files, globes, screws and pencils ....	3	48				
Labor .....	264	71				
			652	29		
<i>Gerrard Street.</i>						
21,089 ft. lumber, \$314.14 ; 1,050 lbs.						
nails, \$22.47 .....	336	61				
2,046 lbs. castings, \$40.92 ; use of jacks,						
\$3 ; 12 pieces sheet lead, \$13.76 ....	57	68				
Labor .....	129	02				
			523	31		
Carried forward .....			4,627	20		



	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....			4,627	20		
<i>Glen Road.</i>						
1,072 ft. lumber, \$13.15; 1 cord cedar posts, \$5.54 .....	18	69				
Labor .....	2	25				
			20	94		
<i>Huntley Street.</i>						
316 ft. lumber, \$8.65; labor, \$33.87 ....	42	52				
			42	52		
<i>Shaw and Arthur Streets.</i>						
20 lbs. nails, \$1; labor, \$40.21.....	41	21				
			41	21		
<i>Queen Street.</i>						
12,480 ft. lumber, \$225.96; 600 lbs. nails, \$17.70.....	243	66				
Repairing shackle board, screws and broom.....	2	70				
Labor .....	242	80				
			489	16		
<i>Strachan Avenue.</i>						
4,594 ft. lumber, \$75.31; 200 lbs. nails, \$8.75 .....	84	06				
Axe, lock, hinges, files, handles and brushes .....	7	05				
Labor .....	228	81				
			319	92		
<i>Island Park Bridge.</i>						
Framing photos.....	2	50				
			2	50		
<b>CULVERT CLEANING.</b>					5,543	45
385 ft. lumber, \$4.96; 6 cedar posts, \$1.36. 50 sheets galvanized iron, \$54.70; 24 culvert bolts, \$1.20 .....	6	32				
91 numbers, \$9.15; cutting pipe, \$4.62..	55	90				
5 scythe blades, 65c.; 338 lbs. paint, \$10.75; 10 gals. coal oil, \$2.40.....	13	77				
Labor .....	13	80				
	6,933	30				
					7,023	09
<b>ENGINEERING AND EXPENSES.</b>						
Subscriptions to journals, \$38.62; engineering works, \$81.25.....	119	87				
Advertising, \$236.05; stationery and printing, \$1,282.19 .....	1,518	24				
Lithographing plans, \$204; 500 copies Engineer's Report, \$251.40 .....	455	40				
<i>Carried forward</i> .....	2,093	51			12,566	54

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	2,093	51			12,566	54
Blue process paper, \$24.60; type writer supplies, \$16.40 .....		41	00			
Mounting maps and photos, \$55.69; binding reports, \$15.50 .....		71	19			
Telephone supplies, \$2.24; car tickets, \$185; hack hire, \$46.50 .....		233	74			
Board of horse and shoeing, \$235.05; hire of pay master's buggy, \$32.50 .....		267	55			
Pasturing horse, \$28; horse feed and straw, \$38.07; veterinary services, \$9.50 .....		75	57			
Building buggy, \$52.95; repairing scow, \$15; harness repairs, \$7.86 .....		75	81			
Cotton waste, 108 lbs., \$16.20; 2 iron boxes, \$14.50; speaking tubes, \$23.90.		54	60			
2 rules, \$8.50; rubber stamps and repairs, \$23; tapes and repairs, \$17.70 .....		49	20			
Petty expenses, \$50; postage stamps and cards, \$175; sundry hardware, \$30.76		255	76			
Rent of 'phones, \$64.50; report re old Drill Shed site, \$50 .....		114	50			
Address to Ald. Lamb, \$75; telegrams, \$22.20; sundry labor, \$4.08 .....		101	28			
Expert services re Yonge St. pavement...		57	00			
Official salaries .....	25,189	14				
			28,679	85		
<i>Cr.</i>						
Amount paid Treasurer for Bloor Street driveways .....			577	13		
					28,102	72
GENERAL PURPOSE.						
<i>Manholes and Culverts.</i>						
118,495 bricks .....		723	95			
252½ yards sand .....		172	47			
533½ bbls. cement .....	1,141	73				
28 ft. 6-inch pipe, \$2.10; 877 ft. 9-inch pipe, \$112.58 .....		114	68			
2 ft. 12-inch pipe, 30c.; 120 ft. 18-inch pipe, \$30 .....		30	30			
1 6-inch bend, 15c.; 81 9-inch bends, \$20.25; 2 junctions, 75c. ....		21	15			
1 6 to 4 reducer, 25c.; 20 culvert connection pipes, \$3.80 .....		4	05			
530 manhole steps .....		87	37			
27,151 lbs. manhole tops .....		375	01			
112 culvert traps, \$560; 818 lbs. culvert grates, \$11.04 .....		571	04			
5,314 lbs. culvert pans, \$71.73; 2,449 lbs. track grates, \$33.06 .....		104	79			
<i>Carried forward</i> .....	3,346	54			40,669	26
5 E.						

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	3,346	54			40,669	26
1,800 lbs. iron, \$28.57; 57 lbs. steel, \$3; 11 culvert bolts, 55c.....	32	12				
16 ft. iron pipe, \$2.40; patterns, \$19.25..	21	65				
1,044 ft. lumber, \$15.22; 3 cords cedar blocks, \$17.28 .....	32	50				
75 gals. coal oil, \$21.20; 3 oil cans, 30c..	21	50				
4 lamps, \$1.60; 12 globes, \$6; 1 sewer pail, 40c.....	8	00				
Horse keep, \$166.80; car tickets, \$20....	186	80				
Repairing pavement on Oxford Street....	9	60				
Labor .....	6,460	79				
<i>Sewer Repairs.</i>			10,119	50		
21,575 ft. lumber .....	291	91				
4½ cords cedar posts.....	23	12				
57,875 bricks .....	397	25				
78¾ yards sand .....	46	99				
114½ bbls. cement.....	244	41				
350 lbs. spikes, \$13.85; 375 lbs. nails, \$13.50.....	27	35				
164 ft. 6-in. pipe, \$13.94; 138 ft. 9-in. pipe, \$17.43 .....	31	37				
258 ft. 12-in. pipe, \$47.60; 58 ft. 15-in. pipe, \$12.60 .....	60	20				
42 ft. 18-in. pipe, \$10.50; 1 6-in. bend, 25c.....	10	75				
3 9-in. bends, 75c.; 4 18-in. bends, \$3....	3	75				
2 6-in. stoppers, 8c.; 30 ft. 11-in. fume pipe, \$13.50 .....	13	58				
6 15-in. curves, \$1.50; 9 junctions, \$2.25; 1 trap, \$2 .....	5	75				
1 culvert connection pipe .....	19					
1,024 lbs. manhole covers .....	13	82				
1,088 lbs. culvert grates .....	14	69				
5 culvert traps .....	25	00				
20 manhole steps, \$3.30; 1 open manhole top, \$6.59 .....	9	89				
2 closed manhole tops.....	16	50				
1 pair shafts, \$4.75; 1 set arms, \$10.75; 116 tire bolts, \$1.73.....	17	23				
1 set rims, \$5.25; 1 cross spring, \$6.75; 2 syphons, \$110 .....	122	00				
12 pair rubber boots, \$60; 7 oil coats, \$14.75 .....	74	75				
13 padlocks, \$3.65; 45 lamp globes, \$18.20; 3 yards wick, 30c .....	22	15				
8 pails, \$3.20; 2 snow shovels, 40c.; 1 light of glass, 35c .....	3	95				
954 pickets, \$57.24; 1 tape, 25c.; 1 level, \$2; 1 rule, 60c .....	60	09				
133.37 gals. coal oil, \$38.44; 3 lbs. white lead, 14c.; 10 lbs. waste, \$1 .....	39	58				
<i>Carried forward</i> .....	1,576	27	10,119	50	40,669	26

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	1,576	27	10,119	50	40,669	26
1 ton coal, \$5; 20 ft. rope, \$1.25; $\frac{3}{4}$ cord wood, \$3.75; 1 pair shears, \$1.25...	11	25				
1 brace and bits, \$3.20; $7\frac{1}{2}$ gross screws, \$2.01; taps and dies, \$1.75; $1\frac{1}{2}$ doz. drawer pulls, \$1.50.....	8	46				
2 pair hooks and eyes, \$2.20; 1 pint rubber cement, \$1; 5 pair hinges, \$3.05.	6	25				
13 lbs. paint, \$5.04; $\frac{1}{2}$ gal. varnish, \$1.50; 2 oil cans, 30c.; 50 ft. grading line, 10c.	6	94				
100 ft. wire rope, \$1.75; 6 stove pipes, 42c.; washers, 20c.; 1 brush, 20c....	2	57				
1 plane, \$3.25; 50 ft. hose and couplings, \$6.25; 'phone service, \$22.50; 1 horse, \$60.....	92	00				
Taxes, Portland St. yard, \$142.13; car tickets, \$55; 26 loads of earth, \$6.50.	203	63				
Lifting and relaying tracks, \$21.50; rent of tracks, \$4; stationery, \$11.....	36	50				
7 lamps, \$3.85; repairing pavements, Winchester Street, \$168.80.....	172	65				
Repairing pavement, Dundas St., \$52.15; labor, \$3,770.34.....	3,822	49				
Horse keep.....	207	60				
			6,146	51		
<i>Cleaning and Flushing Sewers.</i>						
6 flush tanks.....	325	00				
20 manhole steps.....	3	29				
2,202 lbs. closed manhole tops.....	29	72				
611 lbs. iron girders.....	25	97				
16,150 bricks, \$90.47; 28 bbls. cement, \$60.34.....	150	81				
$10\frac{1}{2}$ yards sand, \$8.44; 6 pieces iron pipe, \$1.50.....	9	94				
32 ft. 6-in. pipe, \$2.40; 36 ft. 12-in. pipe, \$5.40.....	7	80				
5 6-in. bends, \$1.25; 10 junctions, \$3...	4	25				
172 ft. lumber, \$4.55; 400 ft. rope, \$9.03.	13	58				
4 pair rubber boots, \$20; 3 oil jackets, \$6.50.....	26	50				
4 iron pails, \$1.70; 1 snow shovel, 20c....	1	90				
1 broom, 15c.; 1 lamp and globes, \$1.15; 2 gals. coal oil, 60c.....	1	90				
1 wheelbarrow, \$2.75; 1 quart rubber cement, \$2.....	4	75				
1 oil can, 30c.; 2 globes, 80c.; 1 ball twine, 20c.....	1	30				
4,345 lbs. copperas.....	24	33				
Rent of cellars.....	396	00				
Water Works charges, service for tanks...	14	82				
“ “ water.....	15,000	00				
Labor.....	5,138	08				
<i>Carried forward</i> .....	21,179	94	16,266	01	40,669	26

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	21,179	94	16,266	01	40,669	26
<i>Cr.</i>						
Amount paid Treasurer for flushing drains.	3	00				
			21,176	94		
<i>Tools and Repairs and Miscellaneous.</i>						
2,914 ft. lumber, \$61.09; 3 door springs, \$3.10; 2 drills, \$5.20.....	69	39				
Rent of 'phones, \$35; repairs to instruments, \$13.85 .....	48	85				
1 roll wall paper, 95c.; 100 lbs. plaster of Paris, \$2.50 .....	3	45				
2 doz. packets tacks, 95c.; 1 plate, \$2.75; 2 emery wheels, \$3.50 .....	7	20				
30 yds. sod, 90c.; 1 gal. turps, 42c.; $\frac{1}{2}$ gal. lard oil, 50c. ....	1	82				
7 paint brushes, \$6.06; 1 doz. dusters, 80c.; 1 oil can, 20c. ....	7	06				
6 bits, \$9.20; 8 locks, \$7.80; 20 lbs. nails, 62c.; 16 lbs. paint, \$2.70.....	20	32				
1 doz. tumblers, \$1.20; soap, \$10.15; 4 knobs, 20c.; 2 qts. varnish, \$2.25....	13	80				
5 doz. sheets cardboard, \$3.15; 1 lamp globe, 10c.; 1 saw, 90c. ....	4	15				
50 rolls blue print paper, \$180; 52 bottles ink, \$18.90; 16 doz. pencils, \$24....	222	90				
3 scales, \$4.50; 2 tape lines, \$3.25; painting signs, \$14 .....	21	75				
1 pair plyers, \$1.90; 1 register face, 90c.; 1 lb. rubber, \$3.75 .....	6	55				
Photo supplies, \$5.65; 1 doz. bottles glue, \$1.50; 8 ft. rubber hose, 96c. .	8	11				
Repairing wheel, \$30; repairing service pipe, Elizabeth Street, \$2.82.....	32	82				
Mounting maps, \$24; typewriter repairs, \$4.25 .....	28	25				
Repairing electric bells, \$1.50; travelling expenses to Ottawa, \$12.....	13	50				
Repairing pavement, cor. King Street and Spadina Avenue .....	71	10				
Cleaning out private drain, \$25.75; J. R. Woods' drain, \$15 .....	40	75				
1 hand brush, 55c.; 3 pair hinges, \$1.50; 1 gal. benzine, 35c.....	2	40				
1 glass for oil tester, 75c.; 10 yds. wick, 50c.; 5 doz. screws, 35c .....	1	60				
2 eclipse springs, \$2.10; 20 lbs. spikes, \$1.40; 2 kettles, \$1.90; 6 galvanized cans, \$2.40.....	7	80				
31 lights glass, \$6.40; 20 hooks, \$6.18; 100 lbs. nails, \$3.09.....	15	67				
<i>Carried forward</i> .....	649	24	37,442	95	40,669	26



	\$	c	\$	c.	\$	c.
<i>Brought forward</i> .....	649	24	37,442	95	40,669	26
1 yd. rubber cloth, \$2.50 ; stationery, \$9 ; veterinary services, \$3.....	14	50				
Repairing pavement, McCaul Street . . .	115	55				
Taxes, Portland Street yard .....	168	31				
Horse kesp, \$73.20 ; car tickets, \$105.....	178	20				
Lithographing photos .....	102	00				
Repairs to buggy .....	25	65				
Damages, Pears Avenue sewer .....	2,350	74				
Labor .....	1,833	02				
			5,437	21		
<i>Connecting Dead Ends.</i>						
18 ft. 9-in. pipe, \$2.34 ; 166 ft. 12-in. pipe, \$24.90 .....	27	24				
5 junctions, \$1.75 ; 17 manhole steps, \$2.80 ; 6 bbls. cement, \$13.02 .....	17	57				
Labor .....	55	23				
			100	04		
<i>Cab and Expressmen's Shelters.</i>						
3,533 ft. lumber, \$66.81 ; 14 pairs sashes, \$14.35.....	81	16				
48 squares metallic shingles .....	19	00				
1 ventilator, \$9 ; screens, \$29.75 .....	38	75				
28 lights glass, \$8.40 ; 18 lbs. putty, 32c. ; 1 ridge cap, \$1.50.....	10	22				
2 pair hinges, \$3.20 ; 1 padlock, 25c. ; 1 lb. staples, 35c.....	3	80				
32 lbs. waste, \$2.61 ; stove, pipes, screen and zinc, \$21.75 .....	24	36				
400 lbs. paint, \$70.64 ; 1 gal. dryers, \$4.38 ; 7 gals. boiled oil, \$3.78.....	78	80				
3 gals. turps, \$1.20 ; 1 can, 25c.....	1	45				
Labor .....	72	84				
			330	38		
Inspection of private drains .....			315	47		
					43,626	05
<b>ROADWAYS.</b>						
<i>Macadam.</i>						
Macadam, 99.75 toise .....	959	48				
Stone, 9.22 toise .....	87	42				
Gravel, 224½ yds., \$148.50 ; sand, 8 yds., \$5.39 .....	153	89				
Cement, 17 bbls., \$36 ; lumber, 2,702 ft., \$34.62 .....	70	62				
9-in. pipe, 144 ft., \$18 ; 2 stone screens, \$25.65.....	43	65				
Rock crusher, \$809 ; repairs to steam roller, \$103.11 .....	912	11				
<i>Carried forward</i> .....	2,227	17			84,295	31

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	2,227	17	.....		84,295	31
Repairing plough, \$11.28 ; castings, 100 lbs., \$2.50 .....		13 78				
Brass plugs, 80c. ; rivets, 6 lbs., 90c. ; bolts and washers, 300, \$1.50 .....		3 20				
Steel, 75 lbs., \$8.59 ; emery, 60c. ; tallow, 50c. ; tarpaulins, \$2.20.....		11 89				
Coal, 26 tons, \$134 ; coal oil, 9 gals., \$2.31 ; 4 oil cups, \$13.....		149 31				
Borax, 10 lbs., 30c. ; bi-carb. iron, 20 lbs., \$3 ; bi-carb. soda, 5 lbs., 50c.....		3 80				
Advertising .....		2 50				
Labor .....	4,451	76				
	6,863	41				
<i>Cr.</i>						
Stone, 2 $\frac{1}{4}$ toise .....	\$ 15	75				
Breaking 274.83 toise stone ....	525	90				
Use of roller, 144 hours at \$1.20 per hour.....	172	80				
		714 45				
				6,148	96	
<i>Cedar Block.</i>						
Cedar blocks, 439 $\frac{1}{4}$ cords.....	2,495	03				
Cedar posts, 2 cords, \$10.48 ; cedar kerbing, 7,751 ft., \$104.63.....	115	11				
Lumber, 3,967 ft., \$51.28 ; nails, 80 lbs., \$1.98 .....	53	26				
Scoria blocks, 50, \$2.75 ; sand, 4 yds., \$2.70 ; gravel, 259 $\frac{1}{2}$ yds., \$133.34....	138	79				
Pitch, 1 bbl., \$2 ; hemp packing, 10 lbs., 50c. ; 3 pick handles, 30c.....	2	80				
Files, 12, \$3.60 ; brackets, 12, \$6.50 ; circular saws, 8, \$28.....	38	10				
Coal oil, 6 gals., \$1.80 ; cylinder oil, 45 gals., \$41.40 .....	43	20				
Labor .....	4,766	45				
	7,652	74				
<i>Cr.</i>						
Paving two entrances for Metallic Roofing Co.....	85	47				
				7,567	27	
<i>Stone and Cobble.</i>						
Labor .....				329	63	
<i>Carried forward</i> .....				14,045	86	84,295 31

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....			14,045	86	84,295	31
<i>General Repairs.</i>						
Paving bricks, 40,000 .....	380	00				
Cedar blocks, 35 cords, \$189.70 ; cedar kerbing, 2,000 ft., \$28.....	217	70				
Cedar posts, 3 cords, \$15.72 ; lumber, 5,860 ft., \$90.90 .....	106	62				
Nails, 200 lbs., \$5.38 ; cartage, 60c. ; gravel, 7 yds., \$5.25 .....	11	23				
Spikes, 100 lbs., \$2.99 ; iron, 8 lbs., 44c. ; steel, 80 lbs., \$16.80 .....	20	23				
Repairs to stone crusher (proportion) ....	109	06				
Steel cramp for roller (proportion) .....	150	00				
Castings, 1,005 lbs., \$20.10 ; jack screws, 4, \$50.....	70	10				
Wrenches, 4, \$6.05 ; lanterns, 33, \$24.06 ; globes, 42, \$18.60.....	48	71				
Hub bands, 2 sets, \$24 ; cross springs, 2, \$10.50 ; oil cups, 4, \$6.40 .....	40	90				
Shafts, 1 pair, \$4.75 ; hose, 25 ft., \$6.25 ; belting, 62 ft., \$68.20.....	79	20				
Speed indicator, 1, \$2.75 ; bolts, 500, \$9.93 ; rivets, 6 lbs., 90c.....	13	58				
Butts, 1 pair, 15c. ; padlocks, 3, 45c. ; screws, 1 gross, \$1.50 ; coal, 20 tons, \$110.75 .....	112	85				
Borax, 10 lbs., 30c. ; bi-carb. iron, 20 lbs., \$3 ; bi-carb. soda, 5 lbs., 50c.....	3	80				
Pick handles, 4½ doz., \$4.92 ; grease, 1 tin, \$3.75 ; coal oil, 5½ gals., \$1.46 ; wick, 21c.....	10	34				
Asphalt crossings, Yonge Street (⅓ cost) ..	463	87				
Labor .....	3,875	74				
	5,713	93				
<i>Cr.</i>						
Scrap iron .....	\$244	87				
Removing material from Adelaide Street .....	86					
Use of roller .....	9	60				
	255	33				
			5,458	60		
<i>Tools and Repairs.</i>						
Steel, 201½ lbs., \$31.62 ; wedges and face plates, 2,418 lbs., \$72.01 .....	103	63				
Belting, 4½ ft., \$4.05 ; lace leather, 1 side, \$4.65 ; sprocket wheels, 8, \$17.90...	26	60				
Repairs to plough, \$11.23 ; anvil, 1, \$25.76 ; cement, 2 bbls., \$4.34 .....	41	33				
Sand paper, 1 roll, \$5.50 ; rubber boots, 2 pair, \$7.50 ; oil coats, 2, \$9.50 ....	22	50				
<i>Carried forward</i> .....	194	06	19,503	46	84,295	31

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	194	06	19,503	46	84,295	31
Wood, 3½ cords, \$12.50 ; lumber, 455 ft., \$20.77 ; bolts, 100, \$1.10 ; grease, 1 tin, \$3.75 .....	38	12				
Repairing chain, \$11 ; tallow plates, 16 lbs., \$1.60 ; photo. supplies, \$4.15 ..	16	75				
6-in. pipe, 40 ft., \$3 ; 9-in. pipe, 54 ft., \$7.02 ; junctions, 4, \$1 .....	11	02				
Borax, 10 lbs., 30c. ; bi-carb. iron, 20 lbs., \$3 ; bi-carb. soda, 5 lbs., 50c.....	3	80				
Coal, 9 tons, \$34.72 ; coal oil, 2 gals., 60c. ; shellac, 1 pint, 65c.....	35	97				
Freight on crusher plate, \$3.02 ; repairing pavement, corner Leader lane, \$5....	8	02				
Rent of wharf, \$276.61 ; labor, \$1,422.14.	1,698	75				
	2,006	49				
<i>Cr.</i>						
Shed .....	\$10	00				
Stone .....	1	25				
Amount paid Treasurer .....	\$11	25				
7,306 lbs. scrap.....	33	85				
	45	10				
<i>Street Railway Repairs.</i>			1,961	39		
Castings, 1,146 lbs.....	69	36				
Toronto Railway Co., lifting and repairing tracks .....	107	96				
Labor .....	569	20				
			746	52		
<i>Reconstruction on Track Allowance.</i>						
Cedar blocks, 263½ cords.....	1,432	73				
Cement, 85 bbls., \$181.51 ; gravel, 367 yds., \$257.79 ; sand, 25 yds., \$16.87..	456	17				
Granite paving, 74½ sq. yds., \$148.45 ; hauling earth, 332 loads, \$116.20....	264	65				
6-in. pipe, 34 ft., \$2.55 ; 6-in. bends, 3, 75c. ; 6 x 6 junctions, 1, 25c.....	3	55				
Rubber belting, 4 ft., \$3.64 ; leather, 1 side, \$5.75 ; pulleys, 1 pair, \$13.25..	22	64				
Coal oil, 4 gals., \$1.20 ; files, 24, \$7.20..	8	40				
Labor .....	1,404	35				
			3,592	49		
<i>Street Intersections.</i>						
Scoria blocks, 9,286, \$514.38 ; macadam, 7.3 toise, \$43.02 .....	557	40				
Cedar blocks, 10 cords, \$54.20 ; stone kerbing, 24 ft., \$11.25 ; sand, 36 yds., \$30.82.....	96	27				
<i>Carried forward</i> .....	653	67	25,803	86	84,295	31

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	653	67	25,803	86	84,295	31
Cement, 97½ bbls., \$210.87 ; nails, 5 lbs., 25c. ; coal oil, 3 gals., \$1.05 ; chalk lines, 3, 40c.....	212	57				
Labor .....	438	50				
			1,304	74		
<i>Asphalt Repairs.</i>						
Advertising, \$8 ; cement, 38 bbls., \$78.12 ; trowel, 1, 55c .....	86	67				
Expert services, \$30 ; Water Works charges, \$1.10 .....	31	10				
Warren-Scharf Asphalt Co. (Toronto and Adelaide Streets .....	477	22				
Contract work, \$1,152.41 ; inspection, \$75.22.....	1,227	63				
Labor .....	176	14				
			1,998	76		
<i>Speeding Tracks.</i>						
(Eastern Avenue.)						
Cement, 1 bbl., \$2.12 ; 9-in. pipe, 6 ft., 75c. ; gravel, 20 yds., \$12.90 ; oak, 74 ft., \$3.33 .....	19	10				
Steel cramp on roller (proportion), \$50 ; labor, \$272.32 .....	322	32				
			341	42		
(Palmerston Avenue.)						
Lumber, 2,324 ft., \$29.15 ; nails, 50 lbs., \$1.29 ; gravel, 6 yds., \$5.70 .....	36	14				
Steel cramp on roller (proportion), \$50 ; labor, \$35.27.....	85	27				
			121	41		
<i>Blevins Place.</i>						
Cedar blocks, 32 cords, \$185.60 ; cedar posts, 1½ cords, \$8 39 .....	193	99				
Cedar kerbing, 2,987 ft., \$40.32 ; spikes, 100 lbs., \$3.80 ; gravel, 133½ yds., \$86.12.....	130	24				
Inspection, \$12.25 ; labor, \$222.18.....	234	43				
	558	66				
<i>Cr.</i>						
Amount paid Treasurer by Imperial Loan and Investment Co.....	480	00				
			78	66		
<i>Bicycle Tracks.</i>						
16 cub. yds. stone, \$21.20 ; gravel, 34 yds., \$23.80 ; slabs, 5½ cords, \$19.25.....	64	25				
<i>Carried forward</i> .....	64	25	29,648	85	84,295	31



	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	64	25	29,648	85	84,295	31
Pitch, 58 bbls., \$142.13; tar, 3 bbls., \$10.50; brooms, 5, \$7.55 .....	160	18	307	06		
Inspection, \$3.50; labor, \$79.13 .....	82	63			29,956	91
SIDEWALKS.						
374,668 ft. lumber, \$4,680.56; 19,228 lbs. nails, \$452.28 .....	5,132	84				
465 lbs. spikes, \$17.44; 3½ cords cedar blocks, \$20.38 .....	37	82				
1,333 ft. cedar kerbing, \$18.66; 18,500 laths, \$37 .....	55	66				
180 yds. gravel, \$130; 23 bbls. cement, \$49.13; towing lumber, \$19 .....	198	13				
125 ft. leather belting, \$54.39; lace leather, \$4.25; 22 grading lines, \$4.40 .....	63	04				
2,200 bricks, \$26.40; 300 ft. hose and couplings, \$38.75; 36 lumber pencils, \$4.75 .....	69	90				
56 ft. kerb stone, \$33.60; 12 doz. files, \$18.42; 367 lbs. iron, \$13.53 .....	65	55				
6 tons coal, \$30.50; 31½ gals. coal oil, \$9; 10 bbls. lime, \$1.75 .....	41	25				
15 lights glass, \$6.35; 25 lbs. waste, \$3.75; 15 lbs. paint, \$5.25 .....	15	35				
100 lbs. white lead, \$4.50; sharpening saws, \$8.40; 1 saw, \$6.75 .....	19	65				
15 pair hinges, \$3.90; 1 trowel, \$1.50; 2 oilers, \$2.50 .....	7	90				
1 set pruning knives, \$8.50; pick handles, \$2.13; repairing chuck, \$1.50 .....	12	13				
Buggy top, \$14.75; repairing steam gauge, \$1.75; 15 stove pipes, \$2.18 .....	18	68				
12 badges, \$15; 6 lanterns, \$4.50; 3 globes, \$3; 10 lbs. glue, \$2.50 .....	25	00				
6 keys, \$2.10; 3 padlocks, 45c.; screws, wick and grass seed, \$2.09 .....	4	64				
Hack hire, \$7.50; ferry fares, \$9.30; sod, sand and oil can, \$3.58 .....	20	38				
Sundry hardware, \$6.99; repairs to crossing, "Saturday Night" lane, \$10.70.	17	69				
Water Works charges moving services....	130	52				
Local improvement walks (not included in By-law): Victoria Street, \$38.43; Soho Street, \$56.53 .....	94	96				
<i>Rentals—</i>						
Telephones, \$103.50; Richmond Street yard, \$70; Hamilton's wharf, \$385...	558	50				
Parkdale siding, \$28.71; King Street yard, \$23.64; Marion Street yard, \$37.50 .....	89	85				
<i>Carried forward</i> .....	6,679	44			114,252	22

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	6,679	44			114,252	22
Engine for crusher, \$70 ; Sackville St. yard, \$60 ; St. Clarens Ave. yard, \$25	155	00				
Labor .....	16,475	79				
			23,310	23		
<i>Cr.</i>						
Amounts paid Treasurer—						
Sidewalk extensions.....	1,199	93				
Wilton Avenue Police Station .....	23	35				
Yonge Street dock .....	140	42				
Lake front.....	167	64				
Bolton Avenue Fire Hall .....	51	85				
			1,583	19		
					21,727	04
<b>STREET CLEANING.</b>						
Labor .....	43,659	80				
" .....asphalt roads.....	2,156	64				
" snow cleaning.....	5,762	65				
Horse feed and straw .....	2,033	23				
4 horses, \$417.50 ; veterinary services, \$35.50.....	453	00				
13,442 ft. lumber, \$234.79 ; 725 lbs. nails, \$28.35 ; 3 cords cedar posts, \$15.72...	278	86				
6,476 lbs. iron, \$161.43 ; 1,488 lbs. steel, \$95.26 ; 3,115½ lbs. steel wire, \$216.78	473	47				
6 bbls. spokes, \$15.60 ; 240 ft. sprocket chain, \$57 .....	72	60				
1,560 lbs. castings, \$39 ; 2,300 bolts, \$21.60 ; 107 lbs. babbit, \$10.70 .....	71	30				
697½ lbs. African bass, \$85.49 ; 300 lbs. galvanized wire fibre, \$78.75.....	164	24				
68 gals. machine oil, \$62 ; 47½ galls. black oil, \$16.63 .....	78	63				
26 gals. coal oil, \$7.41 ; 1 bbl. pitch, \$4.75 ; 1 qt. varnish, \$6.50 .....	18	66				
152 ft. attachments, \$30.40 ; 1 set sweeper sections, \$11.69 .....	42	09				
1 set steel axles, \$6.15 ; 2 set hubbs, \$8.50 ; 8 connections, \$2.88.....	17	53				
1 wagon, \$75 ; 10 turn buckles, \$13.10 ; 5 anchor shackles, \$2.85.....	90	95				
3 pair reamers, \$13.75 ; 6 wood files, \$5.10 ; 4 monkey wrenches, \$1.60 .....	20	45				
1 fire pot, \$2.50 ; emery stand and wheels, \$38.96.....	41	46				
10,000 paving bricks, \$85 ; 222 yds. gravel, \$187.40.....	272	40				
19 yds. sand, \$12.70 ; 3½ bbls. cement, \$7.60 ; 10 yds. natural sand, \$7.50 ..	27	80				
1 pair shafts, \$3.75 ; 30 lbs. nuts, \$1.70 ; 2 spools wire, \$1.50.....	6	95				
<i>Carried forward</i> .....	55,742	71			135,979	26

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	55,742	71			135,979	26
375 ft. brass tube, \$13.69; repairing steam guage, \$4.25 .....		17	94			
30 lbs. borax, 90c.; 15 lbs. bicarb. soda, \$1.50; 60 lbs. bicarb. iron, \$9.00....		11	40			
26,500 shingles, \$68.25; 339 ft. rope, \$11.90; 341 ft. wire rope, \$29.75....		109	90			
70 lights glass, \$9.20; 3 bladders putty, 82c.; 10 lbs. waste, \$1.50 .....		11	52			
12 tons coal, \$64.25; 9 forks, \$2.25; 2 lbs. pomice stone, 50c. ....		67	00			
31 lbs. paint, \$14.65; 150 lbs. white lead, \$6.76; 8 gals. boiled oil, \$4.32 .....		25	73			
3½ gals. dryers, \$3.75; 3½ gals. turps, \$1.40; 4 oil cans, 40c. ....		5	55			
6 baskets, \$2.70; 15 lbs. rivets, \$2.75; 11 tape lines, \$6; stationery, \$18.25....		29	70			
31 ft. white wood, \$1.09; 24 pick handles, \$2.91; 150 broom handles, \$1.50; 4 doz. shovels, \$9.85 .....		15	35			
113 ft. 1 in. W. I. pipe, \$9.06; 4 elbows, 60c.; 19 galvanized thimbles, \$4.60; 1 ensign, \$16.50 .....		30	76			
36 horse brushes, \$3.60; 36 curry combs, \$3.60; sundry hardware, \$18.72 ....		25	92			
21 lbs. rubber packing, \$26.25; rent of phones, \$12.50; rent of wharf, \$55 ..		93	75			
Hire of paymaster's buggy, \$65; travelling expenses, \$8; moving office, \$10 ....		83	00			
Deduct 62,965 lbs. scrap iron .....				56,270	23	
Net expenditure .....				337	09	
					55,933	14
STREET WATERING.						
20,533 ft. lumber, \$459.56; 1,622 lbs. nails, \$45.84; 5½ cord slabs, \$20.25 .....		525	65			
25 sets cart spokes, \$42.24; 13 sets hobbs, \$11.86; 32 sets axles, \$48.50 .....		102	60			
13,924 lbs. iron, \$271.04; 389½ lbs. steel, \$27.30; 448 lbs. castings, \$11.19 ....		309	53			
244½ lbs. leather, \$41.45; buggy top and repairing, \$18.05; leather laces, \$1.50 ..		61	00			
7 boxes horse nails, \$16.93; 2,356 lbs. horse shoe iron, \$76.59; 140 lbs. nuts, \$5.60 .....		99	12			
180 brushes, \$25.95; 48 curry combs, \$4.80; 1,365 lbs. axle grease, \$30.75 ..		61	50			
147 ft. chain, \$12.24; 4 pair malleable circles and patterns, \$38.28 .....		50	52			
1 motor, \$170; 120 expansion rings, \$6.75; 6 brass sprinklers, \$21. ....		197	75			
35½ ft. leather belting, \$14.10; harness trimmings, \$398.07 .....		412	17			
<i>Carried forward</i> .....	1,819	84			191,912	40

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	1,819	84	.....	.....	191,912	40
50 lbs. curled hair, \$17 ; 700 carriage bolts, \$3.95 ; 32 coach screws, 88c .....	21	83				
12 sets sand board plates, \$15 ; 87 lbs. washers, \$3.85 ; 6 knives, \$6.10 .....	24	95				
874 lbs. paint, \$159.98 ; 65½ gals. boiled oil, \$33.58 ; 6½ gals. turps, \$2.60 .....	196	16				
275 lbs. white lead, \$12.39 ; 24 gals. var- nish, \$143.10 ; 4 doz. polish, \$7.45 ..	162	94				
½ ton moss, \$6 ; 924 lbs. jelly stone, \$27.60 ; 20 gals. machine oil, \$25.10 .....	58	70				
13 horses, \$1,373 ; veterinary services, \$163.25 ; horse feed and straw, \$7,946.31 .....	9,482	56				
24 receivers, \$38.40 ; 1 sewing machine, \$10 ; 1 circular saw, \$7.65 .....	56	05				
1 band saw, \$5.75 ; 8 forks, \$5.80 ; 4 doz. shovels, \$9.60 .....	21	15				
591 ft. hose, \$325.33 ; 2 pair pincers, \$4.50 ; 300 lbs. lead, \$12.75 .....	342	58				
293 ft. rope, \$3.74 ; 1 hank cord, \$1.13 ; 81 rolls paper, \$16.04 .....	20	91				
6 galvanized iron pails, \$3 ; 14 brooms, \$2.10 ; 15 pair hinges, \$5.15 .....	10	25				
12 boxes harness polish, \$1.80 ; 48 sheets emery, \$2.80 ; 6 gals. tar, \$1.25 .....	5	85				
15½ tons coal, \$82 ; 39 gals. coal oil, \$11.70 ; 57 lbs. castile soap, \$4.08 .....	97	78				
24 brass couplings, \$6 ; 17 feet 4 in. W. I. pipe, \$61.20 ; 81 bolts, \$25.13 .....	92	33				
1 set stencil figures, \$5.50 ; cutting and threading pipe, \$1.30 ; sandpaper, 40c.	7	20				
1 monkey wrench, 40c. ; 1 gross screws, 83c. ; 14 lights glass, \$5.50 .....	6	73				
Spindle for hydrant, 75c. ; 1 sifter, \$1.25 ; 3 bibb cocks, \$5.55 .....	7	55				
25 handles, \$3.11 ; ½ bbl. cement, \$1.09 ; 3 pints meth. spirits, \$2.75 .....	6	95				
Photos, \$30.80 ; repairing sewing machine, \$5.15 ; repairing window, Bathurst Street, \$2.92 .....	38	87				
2½ pair blinds, \$5.75 ; 17 locks and knobs, \$9.65 ; 61 bdl. thread, \$6.63 .....	22	03				
2 measures, \$1 ; 5 lbs. glue, \$1.50 ; 18 rasps, \$13.20 ; 1 sink trap, \$1.75 .....	17	45				
2 brace and bits, \$7.50 ; 1 set draw jacks and screws, \$2.35 ; 3 lbs. solder, 90c.	10	75				
1 soldering iron, \$1.15 ; 4 lbs. copper rivets, \$2 ; 1 bladder putty, 34c. ....	3	49				
Electric power at western stables, \$86.98 ; 1 set buggy rims, \$8.55 .....	95	53				
Rubber boots, \$5 ; 12 files, \$3.60 ; remov- ing night soil, \$18 .....	26	60				
<i>Carried forward</i> .....	12,657	03	.....	.....	191,912	40

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	12,657	03			191,912	40
Bicarbonate iron and soda, \$3.50; borax, 30c.; sundry hardware, \$7.12.....	10	92				
Stove pipe and elbows, \$6.63; rent of phones, \$49.50; rent western yard, \$300.....	356	13				
Toronto Railway Co., trolley sprinkling..	2,985	45				
Labor.....	10,278	17				
Water Works charges (water).....	10,000	00				
			36,287	70		
<i>Cr.</i>						
Sundries returned to stock.....	12	76				
Paid Treasurer for two pair horse shoes..	50					
				13	26	
					36,274	44
SNOW CLEANING FROM SIDEWALKS.						
Labor.....					12,202	39
SCAVENGING.						
Labor.....	52,278	83				
Horse feed and straw.....	4,329	64				
Veterinary services.....	56	75				
16,509 ft. lumber.....	489	78				
910 lbs. nails, \$26.29; 73½ gross screws, \$23.35.....	49	64				
6,511 lbs. iron, \$151.29; 18 bars steel, \$6.50.....	157	79				
7,550 carriage bolts, \$38.95; 100 nuts, \$4; 15 lbs. rivets, \$3.75.....	46	70				
8 sides leather, \$38.95; 6 sheep skins, \$3.30.....	42	25				
81 yards cotton duck, \$46.98; 96 balls thread, 96c.....	47	94				
10 bdls. spokes, \$39; 48 horse brushes, \$4.80.....	43	80				
162 ft. chain, \$9.67; 4 gals. harness oil, \$1.60.....	11	27				
7 galvanized iron pails, \$3.30; 1 pair shears, \$2.10.....	5	40				
1 monkey wrench, 40c.; 2 forks, \$1.35...	1	75				
4 tons coal, \$20.50; electric lamp and carbons, \$3.60.....	24	10				
1½ cords wood, \$8.25; 15 gals. coal oil, \$3.20.....	11	45				
4 lbs. solder, \$1.20; 50 lbs. sulphur, \$1; 100 lbs. copperas, \$2.....	4	20				
50 lbs. white lead, \$2 25; putty, 18c.; stove polish, 50c.....	2	93				
60 yards earth, \$1.50; rent of phones, \$37; file, 15c.....	38	65				
<i>Carried forward</i> .....	57,642	87			240,389	23



	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> . . . . .	57,642	87			240,389	23
Repairing and docking scow . . . . .	124	73				
1 cow (killed) . . . . .	17	90				
			57,785	50		
Deduct amount paid Treasurer :						
For horse keep for other departments . .	496	10				
“ manure . . . . .	70	10				
“ pound fees . . . . .	103	50				
“ 1 old cart . . . . .	5	00				
			674	70		
Net expenditure . . . . .					57,110	80
STONE AND WOODEN KERBS.						
31,789 ft. lumber, \$428 ; 9,510 ft. cedar kerbing, \$129.23 . . . . .	557	23				
7½ cords cedar blocks, \$39.40 ; 17¼ cords cedar posts, \$94.65 . . . . .	134	05				
700 lbs. nails, \$16.77 ; 450 lbs. spikes, \$14.92 . . . . .	31	69				
44 ft. 6 in. kerb stone, \$26.70 ; ½ toise macadam, \$3 . . . . .	29	70				
2 bbls. cement, \$4.34 ; 220 ft. grading line, 88c. ; 1 gal. coal oil, 17c. . . . .	5	39				
Rent of wharf, \$110 ; rent of engine pro- portion, \$50 . . . . .	160	00				
Water Works Dept., repairing service . . .	3	53				
Labor . . . . .	1,616	03				
			2,537	62		
<i>Cr.</i>						
Amount paid Treasurer, 15½ ft. kerb stone	6	13				
“ “ Cobban Mfg. Co. . . . .	24	38				
			30	51		
					2,507,11	
STONE AND WOODEN CROSSINGS.						
53,996 ft. lumber, \$725.18 ; 340 ft. cedar kerbing, \$4.60 . . . . .	729	78				
27 cords cedar blocks, \$156.60 ; ¼ cord cedar posts, \$1.09 . . . . .	157	69				
855 lbs. nails, \$22.57 ; 400 lbs. spikes, \$13.65 ; 4,000 paving bricks, \$56 . . . .	92	22				
430 scoria blocks, \$23.65 ; 404 ft. kerb stone, \$161.60 ; 10 bbls. cement, \$21.18 . . . . .	206	43				
11 yards gravel, \$8.23 ; 1 gal. coal oil, 30c.	8	53				
Asphalt crossings, Yonge Street . . . . .	231	94				
Labor . . . . .	1,078	32				
			2,504	91		
<i>Carried forward</i> . . . . .			2,504	91	300,007	14

	\$	c.	\$	c.	\$	c.
<i>Carried forward</i> .....			2,504	91	300,007	14
<i>Cr.</i>						
8,130 lbs. scrap and old crossing plates...	42	05				
Amounts paid Treasurer for old crossing plates and sundry crossings .....	115	40				
			157	45		
					2,347	46
PRIVATE DRAINS.						
6,911 ft. 6 in. pipe, \$530.76; 576 ft. 9 in. pipe, \$74.53 .....	605	29				
28 ft. 12 in. pipe, \$4.20; 17 bends, \$3.75; 7 junctions, \$2.43.....	10	38				
150 stoppers, \$9; 2 traps, \$4.78; 1 slant, 25c.....	14	03				
2 reducers, 50c.; sharpening picks, \$1.76.	2	26				
54 $\frac{3}{4}$ bbls. cement, \$117.72; 2,744 ft. lum- ber, \$33.21.....	150	93				
49 gals. coal oil, \$13.66; 2 lamps, 80c.; 6 globes, \$3; 2 oil cans, 20c.....	17	66				
Repairing pavements, Queen Street east, \$19.12; Jarvis Street, \$7.86 .....	26	98				
Inspection, \$1,059.67; labor, 3,314.28...	4,378	95				
			5,201	48		
<i>Cr.</i>						
Amounts paid Treasurer.....	5,751	98				
Less refunds .....	667	30				
			5,084	68		
					116	80
ASHERIDGE'S BAY IMPROVEMENT.						
49,343 ft. lumber, \$732.01; 1,535 lbs. iron, \$23.80; 252 lbs. washers, \$10.08 ....	765	89				
100 laths, 25c.; 54 ft. chain, \$3.71; 250 lbs. swedges, \$17.50.....	21	46				
1 switch block, \$6.25; tapes and repairs, \$7.50; 4 $\frac{1}{4}$ lbs. cotton rope, \$1.70....	15	45				
1 augur, \$2.30; 3 axes, \$6.80; 46 lbs. nuts, \$1.84; 1 oiler, 40c.....	11	34				
7 $\frac{1}{2}$ tons coal, \$29.15; $\frac{1}{2}$ cord wood, \$2.75; 1 gal. coal oil, 30c.....	32	20				
Boat hire, \$26.75; rent of pile driver, \$90; use of sand pump, \$1.190 .....	1,306	75				
Lithographing plans, \$130; mounting maps, \$65; expert services, \$200 ...	395	00				
Inspection, \$147; labor, 649.05 .....	796	05				
Contract work .....	15,525	50				
					18,869	64
<i>Carried forward</i> .....					321,341	04

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....					321,341	04
DON RIVER IMPROVEMENT.						
3,272 ft. lumber, \$42.89 ; 50 lbs. nails, \$1.07 .....	43	96				
1 bbl. cement, \$2.17 ; 82 ft. 6 in. pipe, \$6.15 .....	8	32				
Repairs to doors, Brickenden's shop .....	29	00				
Arbitration fees and copying evidence re McColl .....	215	82				
Labor .....	73	42				
					370	52
BAY AND LAKE STREET SIDEWALK.						
4 cords cedar posts, \$20.96 ; 50 yards gravel, \$47.50 .....	68	46				
Labor .....	6	25				
					74	71
BRIDLE PATH.						
5,854 ft. lumber, \$72.61 ; 2½ cords blocks, \$15.20 .....	87	81				
200 lbs. nails, \$4.28 ; hack hire, \$3 ; re- pairing plough, \$6.60 .....	13	88				
Labor .....	596	55				
					608	24
ESPLANADE AGREEMENT.						
7,046 yards earth .....	176	15				
Copying evidence and law expenses .....	311	50				
Labor .....	10	50				
			498	15		
<i>Cr.</i>						
Amount paid Treasurer for wharf privileges .....			40	00		
					458	15
LAKESHORE ROAD SIDEWALKS.						
29,739 ft. lumber, \$359.53 ; 2½ cords cedar posts, \$12.60 .....	372	13				
700 lbs. nails, \$14.98 ; 80 bolts and wash- ers, \$2.50 .....	17	48				
Labor .....	131	21				
					520	82
LAKESHORE ROAD REPAIRS.						
576 ft. lumber, \$7.46 ; 15.45 toise stone, \$108.15 .....	115	61				
Labor .....	702	74				
					818	35
<i>Carried forward</i> .....					324,191	83
6 E.						

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....					324,191	83
LEVEL CROSSINGS.						
<i>Canadian Pacific Railway Co. Gates.</i>						
Avenue Road, \$397.54; Bathurst Street, \$267.74; Dufferin Street, \$267.75 . .	933	03				
<i>Grand Trunk Railway Co. Gates.</i>						
Pape Ave., \$343.14; Logan Ave., \$343.59; Jones Ave., \$349.66; Bloor Street, \$273.09.....	1,309	48			2,242	51
PUBLIC CONVENIENCES.						
6,512 ft. lumber, \$121.32; 145 lbs. nails and spikes, \$6.01.....	127	33				
17 squares metallic shingles, \$80.75; 14 enamelled urinals, \$31.50.....	112	25				
200 lbs. white lead, \$9; 5 gals. boiled oil, \$2.70; 1 gal. dryers, \$1.75.....	13	45				
5 gals. turps, \$2; 1 gal. benzine, 35c.; 3 paint brushes, \$1.35.....	3	70				
12 pair hinges, \$4.20; 12 locks, \$1.80; 5 cans, \$1.50.....	7	50				
19 ft. 1 in. iron pipe, \$1.52; 2 gals. coal tar, \$1.....	2	52				
Labor.....	191	02			457	77
PUBLIC LAVATORY.						
3,701 ft. lumber, \$26.02; 1 bbl. cement, \$2.17.....	28	19				
28 ft. 9 in. pipe, \$3.64; 1 9 in. bend, 25c.; 1 junction, 25c.....	4	14				
1 roll tar paper, \$1.10; signs, \$3; sundry hardware, \$63.15.....	67	25				
Supplies for attendant.....	18	90				
Excavating pavement.....	65	73				
Altering gas mains.....	104	50				
Altering incandescent mains and wires...	419	32				
Contract work.....	2,291	08				
Architect's fees.....	217	00				
Labor.....	54	97			3,271	08
ROSEDALE VALLEY ROAD.						
37,599 ft. lumber, \$615.77; 21 cords cedar posts, \$112.35.....	728	12				
1,308 pickets, \$80.73; 1,602 lbs. nails, \$47.59; 200 lbs. spikes, \$9.50... ..	137	82				
Cedar posts for rustic bridge, \$25; 3 bdls. shingles, \$3.50.....	28	50				
<i>Carried forward</i> .....	894	44			330,163	19

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	894	44			330,163	19
1,800 bricks, \$11.15; 1 yard sand, 68c.; 8 bbls. cement, \$16.95 .....		28	78			
1,476 loads earth, \$330.65; 2,812 yards sod, \$84.36 .....	415	01				
3,500 ft. 4 and 5 in. tile, \$93.98; 574 ft. 6 in. pipe, \$43.05; 78 ft. 9 in. pipe, \$9.79 .....	146	82				
100 ft. 15-in. pipe, \$20; 9 bends and junc- tions, \$2.25; 1 culvert top, \$3.67....	25	92				
24 drift bolts and plates, \$5.76; 46½ gals. paint, \$41.40; 1 lamp, 40c. ....	47	56				
350 lbs. grass seed, \$48.75; 1 roll tar paper, \$1.10; 1 square metallic shingles, \$5.25 .....	55	10				
Water Works charges, \$165.22; allowance for old fence, \$24.50 .....	189	72				
Hack hire, \$16; sundry hardware, \$5.96.	21	96				
Arbitration fees, \$486; copying evidence, \$145.80 .....	631	80				
Land damages .....	8,947	96				
Contract work (fence) .....	905	26				
Labor and Inspection .....	5,070	86			17,381	19
<b>SAND PUMP.</b>						
Contract work .....	12,467	00				
3,600 ft. lumber, \$52.62; 90 lbs. nails, \$3.35; 310 bolts, \$15.50 .....	71	47				
6 gals. paint, \$7.70; 10 paint brushes, \$7.80; 1 gal. varnish, \$1.20 .....	16	70				
289½ gals. oil, \$119.16; 115 ft. hose and couplings, \$43.85 .....	163	01				
50 rubber gaskets, \$18.38; rubber valves and rings, \$4.50 .....	22	88				
3 pair rubber boots, \$15; 2 oil suits com- plete, \$21 .....	36	00				
2 capstans, \$88.32; 1 hand pump, \$12; 3 winches, \$6 .....	106	32				
8 anchors, \$43.68; 90 ft. chain, \$8.10; 16 lamps, \$28.50 .....	80	28				
Packing, \$40.22; covering boilers, \$183.71	223	93				
½ cord cedar posts, \$2.62; 46 tons coal, \$175.41; ½ cord wood, \$2.49 .....	180	52				
1 steam heater, \$15; Sundry hardware, \$45.03 .....	60	03				
Travelling expenses, \$85.65; advertising, \$12 .....	97	65				
Hack hire, \$52; photos, \$23 .....	75	00				
Furniture for dredge .....	365	26				
Tools and plant .....	565	49				
Towing, \$228.50; food for crew, \$128.50.	357	00				
Labor .....	674	35			15,562	89
<i>Carried forward</i> .....					347,544	38



	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....			15,562	89	347,544	38
<i>Cr.</i>						
Work charged to Ashbridge's Bay improvement .....			1,190	00		
RAILWAY PAVEMENTS.					14,372	89
<i>Avenue Road, Bloor to N. City Limits.</i>						
Contract work .....			131	60		
<i>Broadview Avenue, Queen to Danforth.</i>						
Contract work .....			607	75		
<i>Dundas Street, Arthur to Jamieson.</i>						
Contract work .....			20	60		
<i>Dundas Street, Queen to the Bend.</i>						
Contract work .....			121	62		
<i>King Street, Simcoe to Bathurst.</i>						
Contract work .....			21	25		
<i>King Street, Bathurst to Strachan.</i>						
Contract work .....			498	57		
<i>McCaul Street, Queen to College.</i>						
Contract work .....			175	00		
<i>Ossington Avenue, Dundas to College.</i>						
Contract work .....			58	25		
<i>Spadina Avenue, King to Queen.</i>						
Contract work .....			1,356	16		
<i>Station Street, York to Simcoe.</i>						
Contract work .....			71	20		
LOCAL IMPROVEMENT PAVEMENTS.					3,062	00
<i>Amelia Street (Brick) Parliament to Sumach.</i>						
Contract work .....	168	43				
<i>Carried forward</i> .....	168	43			364,979	27

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	168	43			364,979	27
3 cord cedar blocks, \$17.40; 150 ft. cedar kerbing, \$2.03.....	19	43				
1 yd. gravel, 75c.; 2,504 sq. yds. sod, \$75.12.....	75	87				
Labor, \$201.91; Inspection, \$19.72.....	221	63				
			485	36		
<i>Henry Street (Brick) Baldwin to College.</i>						
Contract work.....	4,499	26				
3,250 bricks, \$21.05; 7 yds. sand, \$4.72; 14 bbls. cement, \$30.38.....	56	15				
2 culvert traps, \$10.00; 6 culvert grates, \$35.42; 1 culvert pan, \$7.21.....	52	63				
3 gully tops, \$22.05; 30 ft. 9 in. pipe, \$3.90; 16 ft. 6 in. pipe, \$1.20.....	27	15				
5 bends, \$1.25; 3 culvert connection pipes, 57c.; 5 gals. coal oil, \$1.50.....	3	32				
2 lamps, 80c.; labor, \$140.86; Inspection, \$87.50.....	229	16				
			4,867	67		
<i>Huron Street (Brick) College to Bloor.</i>						
Contract work.....	11,050	00				
9,200 bricks, \$57.97; 25 yds. sand, \$16.88; 40½ bbls. cement, \$88.44.....	163	29				
22 culvert pans, \$158.75; 2 gullies, \$14.28; 1 closed man hole, \$7.33.....	180	36				
190 ft. 9 in. pipe, \$24.70; 15 ft. 9 in. bends, \$3.75; 1 junction, 25c.....	28	70				
11 culvert connection pipes, \$2.09; 5 gals. coal oil, \$1.50; 1 lamp, 40c.....	3	99				
1,500 ft. lumber, \$18.86; 3 cord cedar blocks, \$16.26; 100 lbs. nails, \$2.14.....	37	26				
Labor, \$446.89; Inspection, \$353.25.....	800	14				
			12,263	74		
<i>Lowther Avenue (Brick) Avenue Road to 628 feet West.</i>						
Contract work.....	2,496	84				
450 bricks, \$2.83; 5 yds. sand, \$3.38; 6½ bbls. cement, \$14.10.....	20	31				
4 culvert pans, \$28.83; 2 iron girders, \$9.88.....	38	71				
40 ft. 9 in. pipe, \$5.20; 4 bends, \$1.00; 2 culvert connection pipes, 38c.....	6	58				
1,476 yds. sod.....	44	28				
Labor, \$197.75; Inspection, \$60.75.....	258	50				
			2,865	22		
<i>Carried forward</i> .....			20,481	99	364,979	27

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....			20,481	99	364,979	27
<i>Lane, Grand Opera House, (Brick) Adelaide Street to 149 feet South.</i>						
Contract work.....	388	23				
2,000 bricks, \$11.90; 2 yds. sand, \$1.35; 5 bbls. cement, \$10.85.....	24	10				
1 culvert grate, \$3.70; 1 culvert trap, \$5; 1 man hole cover, \$6.91.....	15	61				
9 man hole steps, \$1.49; 26 ft. 6 in. pipe, \$1.95; 174 ft. 9 in. pipe, \$22.62.....	26	06				
4 junctions, \$1; 2 stoppers, 10c.....	1	10				
Labor, \$18.60; Inspection, \$69.50. ....	88	10				
			543	20		
<i>Prince Arthur Avenue (Brick) Avenue Road to 628 feet West.</i>						
Contract work.....	2,963	95				
1,250 bricks, \$8.10; 5½ yds. sand, \$3.04; 6 bbls. cement, \$13.02.....	24	16				
4 culvert pans, \$29.43; 10 ft. 9 in. pipe, \$1.30.....	30	73				
1,855 yds. sod.....	55	65				
Labor, \$240.39; Inspection, \$89.25.....	329	64				
			3,404	13		
<b>CEDAR BLOCK.</b>						
<i>Argyle Street, Dundas to Gladstone.</i>					24,429	32
Contract work .....			324	50		
<i>Baldwin Street, Spadina to Beverley.</i>						
Contract work .....			148	80		
<i>Bloor Street West, Dufferin to Lansdowne.</i>						
Contract work .....			583	45		
<i>Carr Street, Esther to West End.</i>						
Contract work .....			98	72		
<i>Davies Avenue, Queen to Matilda.</i>						
Contract work .....			55	65		
<i>D'Arcy Street, McCaul to Spadina.</i>						
Contract work .....			260	63		
<i>Northcote Avenue, Queen to Afton.</i>						
Contract work .....			231	30		
<i>Carried forward</i> .....			1,703	05	389,408	59

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....			1,703	05	389,408	59
<i>Oxford Street, Spadina to Augusta.</i>						
Contract work .....			100	90		
<i>Roseberry Avenue, Bathurst to East End.</i>						
Contract work .....			27	63		
<i>Sullivan Street, Spadina to Beverley.</i>						
Contract work .....			148	30		
<i>Ulster Street, Bathurst to Markham.</i>						
Contract work .....			29	70		
<i>Yorkville Avenue, Yonge to Avenue Road.</i>						
Contract work .....	3,046	56				
5,000 bricks, \$29.75; 6 yds. sand, \$4.05; 16 bbls. cement, \$34.72 .....		68 52				
3 manhole covers, \$20.58; 20 manhole steps, \$3.30; 5 culvert traps, \$25. ...		48 88				
2 culvert grates, \$7.34; 1 track grate, \$8.26; 10 ft. 6 in. pipe, 75c.....		16 35				
64 ft. 9-in. pipe, \$8.32; 10 ft. 15 in. pipe, \$2; 1,849 yds. sod, \$55.47.....		65 79				
Labor, \$338.95; Inspection, \$130.....		468 95				
			3,715	05		
<i>St. Patrick Street, Spadina to Beverley.</i>						
Contract work .....	117	85				
130 ft. lumber, \$1.66; 100 ft. hose, \$15; 1 reducer, \$3.75 .....		20 41				
2,580 sq. yds. sod, \$77.40; Labor, \$111.05		188 45				
			326	71		
<i>Simcoe Street, Front to Station.</i>						
Contract work .....	1,458	38				
2,000 bricks, \$11.90; 2 yds. sand, \$1.35; 4 bbls. cement, \$8.68 .....		21 93				
3 culvert traps, \$15; 2 culvert pans, \$14.72; 1 culvert grate, \$3.67 .....		33 39				
59 ft. 9-in. pipe, \$7.02; Water Works charges, \$16.....		23 02				
Labor, \$79.42; Inspection, \$63.50.....		142 92				
			1,679	64		
					7,730	98
<i>Carried forward</i> .....					397,139	57

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....					397,139	57
<b>MACADAM.</b>						
<i>Beverley Street Queen to College.</i>						
Contract work .....	3,055	56				
650 bricks, \$4.41; $\frac{1}{4}$ yd. sand, 17c.; $2\frac{1}{2}$ bbls. cement, \$5.43 .....		10 01				
128 ft. lumber, \$1.57; 1 cord cedar blocks, \$5.80; 35 ft. kerb stone, \$21.....		28 37				
59 $\frac{1}{2}$ toise macadam, \$357; 6,373 sq. yds. sod, \$191.19.....		548 19				
150 ft. hose, \$15; 3 gals. coal oil, 90c.; pick handles and can, 37c.....		16 27				
16 ft. 6-in. pipe .....		1 20				
Labor, \$318.72; Inspection, \$84.40.....	403	12				
			4,062	72		
<i>Jarris Street, Queen to King.</i>						
5,000 bricks, \$53.90; 4 yds. sand, \$2.68; 232 yds. gravel, \$148.35 .....	204	93				
$\frac{3}{4}$ cord cedar posts, \$4.19; 17 bbls. cement, \$36.89.....		41 08				
3 culvert traps, \$15; 1 manhole cover, \$6.86; 520 ft. 4-in. pipe, \$7.12.....		28 98				
10 manhole steps, \$1.65; 32 ft. 8-in $\frac{3}{4}$ iron pipe and fittings, \$3.47 .....		5 12				
18 ft. 9-in. pipe, \$2.34; 35 lbs. nails, \$1.42; 5 $\frac{3}{4}$ tons coal, \$28.77 .....		32 53				
25.63 toise stone, \$245.94; breaking 39.37 toise stone, \$78.74; 5 gals. coal oil, \$1.50 .....		326 18				
Shaft and keys, proportion, \$15; rent of crusher, $\frac{1}{3}$ cost, \$43.70.....		58 70				
Removing stone crusher, proportion.....		20 00				
Labor .....	1,479	44				
			2,196	96		
<i>John Street, Front to King.</i>						
378 ft. lumber .....			7	51		
<i>Queen's Park.</i>						
800 ft. 2 in. tile pipe, \$10; 2 culvert traps, \$10.....		20 00				
40 yds. gravel, \$38.00; 4 gals. coal oil, \$1.20.....		39 20				
Labor.....	1,432	21				
			1,491	41		
<i>Richmond Street, Bay to York.</i>						
3,000 bricks, \$17.85; 66 yds. sand, \$5.40; 352 yds. gravel, \$246.40.....	269	65				
<i>Carried forward</i> .....	269	65	7,758	60	397,139	57



	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	269	65	7,758	60	397,139	57
81 toise macadam, \$486 ; breaking 73 toise stone, \$146.....	632	00				
1,723 ft. 2 in. curb stone, \$631.26 ; hauling curb stone, \$55.93.....	687	19				
16 bbls. cement, \$34.72 ; 2 culvert traps, \$10 ; 2 culvert grates, \$1.97. ....	46	69				
1 stone screen, \$13.65 ; 90 ft. 9 in. pipe, \$11.70 ; coal oil and lamps, \$1.90...	27	25				
$\frac{1}{3}$ rent of stone crusher, \$43.70 ; hauling stone crusher, \$20.....	63	70				
Use of steam road roller.....	102	00				
Labor, \$1,068.62 ; Inspection, \$56.25 ....	1,124	87				
			2,953	35		
<i>Temperance Street, Yonge to Bay.</i>						
35 toise macadam, \$269.15 ; breaking 22 toise stone, \$44.....	313	15				
106 yds. gravel, \$74.20 ; 1 bbl. cement, \$2.17 ; 3 gals. coal oil, 90c.....	77	27				
$\frac{1}{3}$ rent of stone crusher, \$43.70 ; moving stone crusher, \$10.....	53	70				
Use of steam road roller.....	70	80				
Labor.....	685	49				
			1,200	41		
					11,912	36
ASPHALT PAVEMENT.						
<i>Bay Street, King to Queen.</i>						
Contract work.....			2,930	66		
<i>Brunswick Avenue, College to Ulster.</i>						
Contract work.....	7,623	89				
3,550 bricks, \$23.07 ; 9 $\frac{1}{4}$ yds. sand, \$6.25 ; 46 yds. gravel, \$32.20.....	61	52				
19 bbls. cement, \$41.23 ; 1 $\frac{67}{8}$ toise macadam, \$4.02 ; 6 culverts, \$42.12.....	87	37				
5 round man holes, \$37.25 ; 3 culvert pans, \$21.62 ; 1 culvert trap, \$5.....	63	87				
150 ft. 9 in. pipe, \$19.50 ; 9 bends, \$2.25 ; connection pipes and junction, \$1.20.	22	95				
2,724 sq. yds. sod.....	81	72				
Labor, \$471.39 ; Inspection, \$100.25 ....	571	64				
			8,512	96		
<i>Gerrard Street, Jarvis to Sherbourne.</i>						
Contract work.....			1,830	41		
<i>Jordan Street, Wellington to King.</i>						
Contract work.....			486	90		
<i>Carried forward</i> .....			13,760	93	409,051	93

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....			13,760	93	409,051	93
<i>King Street, Sherbourne to Simcoe.</i>						
Contract work.....			4,636	17		
<i>Melinda Street, Yonge to Bay.</i>						
Contract work..			1,443	75		
<i>Sherbourne Street, South Drive to the Bridge.</i>						
Contract work.....			2,079	63		
<i>St. George Street, College to Bloor.</i>						
Contract work.....			5,549	94		
<i>Wellington Street, Bay to York.</i>						
Contract work.....			1,991	94		
<i>Lane in rear of Canada Permanent Building.</i>						
Contract work.....			36	62		
<i>First Lane West of Yonge Street, Temperance to Adelaide.</i>						
Contract work.....	1,392	09				
Labor, \$10.50; Inspection, \$60.00.....	70	50				
<i>Leader Lane, Wellington to Colborne.</i>						
Contract work.....	801	95				
3½ cords cedar blocks, \$20.30; 2½ yds. sand, \$1.98.....	22	28				
Labor, 24.93; Inspection, \$36.50.....	61	43				
			885	66		
					31,847	23
LOCAL IMPROVEMENT SEWERS.						
<i>Pear's Avenue, Avenue Road to Bedford Road.</i>						
Contract work.....	935	00				
					935	00
LOCAL IMPROVEMENT SIDEWALKS.						
<i>Wooden.</i>						
531,454 ft., 2 and 3 in. planks.....	6,805	99				
169,750 ft. 4x4 scantling.....	2,081	83				
<i>Carried forward</i> .....	8,887	82			441,834	16

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	8,887	82			441,834	16
1,100 ft. cedar curbing.....	14	85				
2½ cords cedar posts.....	11	83				
17,785 lbs. nails.....	416	99				
Water Works charges, moving services....	763	95				
Labor.....	2,774	87				
<i>Cr.</i>	12,870	31				
Station St., n., York to Simcoe.....	234	90				
<i>Brick.</i>			12,635	41		
14,000 bricks, \$168 ; 25 bbls. cement, \$54.25 .....	222	25				
12 yds. sand, \$8.10 ; 63 ft. stone curbing, \$29.50 .....	37	60				
363 ft. 2 in. plank, \$4.82 ; ½ cord posts, \$2.80 ; 5 lb. nails, 32c. ....	7	94				
230 ft. 2 in. tile pipe, \$2.90 ; pipe junc- tions and coal oil, \$1.....	3	90				
Labor.....	144	19				
<i>Concrete.</i>			415	88		
Contract work.....	2,973	66				
Water Works charges, moving services....	24	26				
Painting sign board .....	1	08				
Labor, \$10.77 ; Inspection, \$237.69.....	248	46				
<i>Queen Street Subway Widening.</i>			3,247	46		
Advertising, \$83.50 ; printing contract forms, \$93.60 .....	177	10			16,298	75
Deputation expenses, \$40.45 ; photos, \$37. Labor.....	77	45				
	29	66				
<i>Dundas Street Bridges.</i>			284	21		
Land damages and costs therein.....			12,082	50		
<i>York Street Bridge.</i>						
Contract work.....	4,987	22				
Advertising.....	323	08				
Inspection.....	110	00				
<i>Cherry Street Bridge.</i>			5,420	30		
Advertising.....			67	75		
<i>Foot Bridge Over the Don.</i>						
Contract work.....	716	00				
Inspection.....	18	00				
			734	00		
					18,588	76
Personal and Departmental.....					476,721	67
					24,443	91
<b>Total</b> .....					501,165	58

## LOCAL IMPROVEMENT WOODEN SIDEWALKS.

Street.	Side.	From	To	\$	c.
Ann .....	South ..	Mutual .....	Church .....	91	50
Adelaide .....	North ..	Simcoe .....	Spadina .....	608	10
Barton .....	" ..	Bathurst .....	Palmerston .....	108	92
Bathurst .....	West ..	Queen .....	1st lane south .....	49	54
" .....	East ..	" .....	Farley .....	64	64
Beverley .....	" ..	College .....	Cecil .....	168	86
Bellwoods Av .....	West ..	Arthur .....	Mansfield .....	349	94
Britain .....	South ..	George .....	Sherbourne .....	122	01
Camden .....	North ..	Spadina .....	Brant .....	211	89
Catherine .....	" ..	Peter .....	West end .....	59	27
Coolmine Road .....	East ..	Dundas .....	343 ft. north .....	102	06
Cornwall .....	North ..	River .....	East end .....	83	06
Clyde .....	South ..	Kensington .....	Spadina .....	137	36
Claremont .....	West ..	Mansfield .....	Treford .....	104	79
Charles .....	South ..	Jarvis .....	Church .....	266	51
Dominion .....	" ..	Dunn .....	East side lot 6 .....	96	34
Duchess .....	North ..	Jarvis .....	George .....	69	51
" .....	" ..	Berkeley .....	Ontario .....	150	17
Dundas .....	West ..	120 ft. s. of Humb'rt	183 ft. south .....	51	62
" .....	East ..	Bruce .....	Halton .....	353	98
Esther .....	West ..	Queen .....	Foxley .....	117	87
Eden Place .....	North ..	Bathurst .....	East end .....	144	77
Euclid Ave. ....	West ..	616 ft. n. of Arthur	College .....	370	97
Elizabeth .....	" ..	College .....	Grenville .....	53	78
Front .....	North ..	Church .....	West Market .....	314	55
Gerrard .....	" ..	Yonge .....	Mission Ave. ....	217	57
" .....	South ..	Jarvis .....	1st lane e. of Yonge	304	42
" .....	" ..	Elizabeth .....	Mission Ave. ....	39	08
Gladstone Ave. ....	East ..	Queen .....	Argyle .....	364	65
Glen Road .....	West ..	Hill .....	City limit .....	76	26
Harbord .....	South ..	Spadina .....	Robert .....	147	56
Huron .....	East ..	Baldwin .....	D'Arcy .....	108	18
Jarvis .....	West ..	Queen .....	Richmond .....	64	54
John .....	" ..	Adelaide .....	" .....	112	22
King .....	North ..	River .....	Sumach .....	292	60
" .....	South ..	Trinity .....	Erin .....	57	07
Lisgar .....	East ..	McKenzie .....	Afton .....	116	35
Maitland Place .....	Both ..	Homewood Ave. ....	West end .....	90	76
Mansfield Ave. ....	North ..	Manning .....	Grace .....	214	84
Marshall .....	" ..	Brock .....	190 ft. easterly .....	38	51
Morse .....	West ..	Queen .....	Eastern Ave. ....	269	29
McGill .....	South ..	197 ft. e. of Yonge	Mutual .....	334	34
Niagara .....	North ..	Bathurst .....	Tecumseth .....	185	73
North Lansdowne ..	East ..	Shirley .....	Dundas .....	60	62
North Drive .....	South ..	Yonge .....	Rosedale Road .....	66	41
Ossington Ave. ....	West ..	Harrison .....	College .....	29	08
" .....	" ..	" .....	Dundas .....	179	61
Carried forward .....				7,621	76

LOCAL IMPROVEMENT WOODEN SIDEWALKS—*Continued.*

Street.	Side.	From	To		
<i>Brought forward.</i>				\$	c.
				7,621	70
Pacific Ave.	East	Liberty	Atlantic	148	93
Parliament	"	St. David's	156 ft. north	61	62
Pembroke	West	Shuter	Gerrard	482	59
"	East	Wilton Ave	"	274	55
Peter	"	King	Adelaide	118	30
"	"	Front	King	227	51
"	West	Catherine	75 ft. north	22	75
Power	East	19 ft. n. of King	105 ft. s. of Queen	211	71
Princess	"	94 ft. n. of King	Duke	45	77
Phoebe	South	Bevarley	Soho	53	41
Queen	"	Duncan	Spadina	871	34
Sackville	West	Winchester	Salsbury	61	65
"	"	84 ft. n. of Queen	St. David's	224	22
Sultan	South	West of lot 3	The Park	49	87
Simmach	East	King	Funston	70	70
Summerhill Ave	South	Yonge	151 ft. east	26	62
Shuter	"	Jarvis	Sherbourne	255	43
Smith	North	Logan	414 ft. east	88	81
Spadina	West	Clyde	161 ft. s. St. Andrews	86	54
Shirley Place	Both	St. Clarens	Lansdowne	110	52
St. Albans	North	Yonge	Surry Place	322	67
Trinity	West	King	Front	152	95
Treford Place	North	Claremont	Bellwoods	71	69
Victoria	East	Gould	Wilton Ave	146	94
Victoria Cres.	South	Dunn	East end	99	54
Withrow Ave.	North	Logan	414 ft. east	81	74
Wilton Ave.	"	Sumach	River	167	93
Wickson Ave.	"	Yonge	West end	230	44
Windsor	"	Adelaide	Richmond	237	93
Wilton Cres.	South	Sherbourne	Pembroke	100	77
Yorkville Ave	North	Yonge	584 ft. west	143	17
<i>Cr.</i>				12,870	31
Station St.	North	York	Simeoe	234	90
				12,635	41

## LOCAL IMPROVEMENT BRICK SIDEWALK.

Street.	Side.	From	To		
				\$	c.
York	East	Wellington	Rossin House Lane	415	88



## LOCAL IMPROVEMENT CONCRETE SIDEWALKS.

Street.	Side.	From	To	
Leader Lane.....	Both...	Wellington.....	Colborne.....	\$ c.
Carlton.....	South ..	Yonge.....	Church .....	356 68
Queen.....	North...	Dundas .....	Dovercourt.....	735 52
Queen's Park Cres- cent .....	West...	College .....	526 ft. North and North-West.....	110 04
Sherbourne.....	East....	Wellesley .....	Howard.....	526 43
Terauley .....	West....	Louisa .....	90 ft. 4 in. North ..	54 92
York.....	West....	Front .....	Wellington.....	477 97
				985 90
				<u>\$3,247 46</u>

## STATEMENT OF STORES ON HAND DECEMBER 31ST., 1896.

2-in. plank, 1,587,029 ft.....	\$19,539 70
3 and 4-in. plank, 64,819 ft.....	815 18
4x4 scantling, 403,960 ft.....	4,953 95
6x6 scantling, 4,916 ft.....	60 32
Cedar curbing, 59,672 ft.....	805 57
Cedar posts, 160 cords .....	784 00
Cedar blocks, 165 $\frac{84}{128}$ cords .....	897 86
Bricks, 2,195, \$13.83; cement, 58 bbls., \$125.86.....	139 69
Coal oil, 21.60 gals., \$6.48; culvert connection pipes, 141, \$26.79....	33 27
Gullies: Smith, 2, \$26.00; Tomlinson, 15, \$110.40; St. George, 7, \$178.50 .....	314 90
Man hole steps, 89, \$3.14; man hole tops, 5,430 lbs., \$81.45.....	84 59
Man hole covers, 2,722 lbs., \$40.16; tile inverts, 68 ft. 6 in., \$24.66..	64 82
Pipe, 6 in., 700 ft., \$52.50; 9 in., 246 ft., \$31.98.....	84 88
Pipe, 12 in., 62 ft., \$9.30; 15 in., 12 ft., \$2.40; 18 in., 44 ft., \$11....	22 70
Bends, 118, \$29.50; junctions, 50, \$17.50; 24, \$12.00; 25, \$6.25; 14, \$7; 17, \$4.25.....	76 50
Traps, 4, \$2; reducers, 10, \$2.50; stoppers, 60, \$3; slants, 207, \$103.50. ....	111 00
Sand, 13 $\frac{1}{4}$ yds., \$8.95; track gully grates, 12, \$109.80.....	118 75
Pails, lamps and sundry tools.....	18 80
Total.....	<u>\$29,226 03</u>

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APPENDIX "B"

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WATER WORKS DEPARTMENT.

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For Abstract of Charges see Page	ACCOUNTS.	\$ c.		\$ c.		\$ c.	
	MAINTENANCE ACCOUNT.						
97	Maintenance of distribution .....	20,916	53				
99	Machine Shop and Meters .....	8,439	97				
98	Main Pumping Station .....	55,626	60				
100	Press and Storehouse .....	7,249	52				
101	Reservoir .....	9,602	59				
101	High Level Station .....	10,227	13				
102	Office .....	802	42				
102	Cartage .....	3,487	27				
102	Miscellaneous and rentals .....	1,262	03				
102	Water distribution .....	765	54				
102	Island Water Works .....	1,571	77				
	CONSTRUCTION ACCOUNT.			119,951	37		
103	House services .....	5,462	43				
104	Connecting dead ends .....	982	69				
104	Short lengths and extra fire hy- drants .....	3,917	11				
105	Concreting Reservoir .....	7,064	07				
105	New closets at Main Pumping Sta'n	805	64				
105	6-ft. Steel Conduit .....	35,616	85				
106	Anchoring Conduit .....	13,411	20				
106	Revenue Mains .....	389	24				
106	New water supply .....	10,571	08				
106	Connection between pumping wells	3,287	47				
106	Island water supply .....	15,895	69				
107	24-in. Main, Front Street .....	551	25				
107	Bathurst Street Main .....	271	35				
107	Lake Street Main .....	1,112	46				
	RENEWALS.			99,338	53		
108	House services .....	1,537	28				
108	Rebuilding Well in old Engine House .....	1,554	34				
108	Relaying Intake Pipe .....	2,724	30				
108	Repairs to old Engine House .....	654	06				
109	Altering G. T. R. Mains .....	916	53				
109	Pipe laying renewals .....	238	91				
	SPECIAL WORKS.			7,625	42		
109	Changing furnaces to Hawley Down Draught System .....			5,418	22		
109	Inspection and Exam'n of Conduit .....			1,628	16		
109	Discharge Pipes, Nos. 1, 2, and 3 Engines .....			623	01		
110	New Meters .....			4,477	00		
110	Special Servi's at Main Pu'p'g Sta'n			457	55		
				239,519	26		

## MAINTENANCE.

## MAINTENANCE OF DISTRIBUTION.

	\$	c.	\$	c.	\$	c.
22 lengths cast iron pipe.....	124	15				
63 ft. 9-in. wrought iron pipe..	5	15				
447 single iron boxes, \$291.63 ; 360 double iron boxes, \$14.75.....	706	38				
498 stop cock rods, \$109.56 ; 100 long valve chamber tops, \$656..	765	56				
89 round valve chamber tops, \$1,099.15 ; 184 centres, \$25.76.....	1,124	91				
20 hydrants, \$590 ; 18 lbs. phosphor bronze casting, \$3.06.....	593	06				
47 sleeves, \$102.43 ; 9 6-in. bend sleeves, \$23.22 ; 4 6-in. $\frac{1}{4}$ bends, \$15.20.....	140	85				
17 valves, \$214.20 ; 9 4-in. iron valve boxes, \$13.50.....	227	70				
58 oak chamber tops, \$274.92 ; 26 s. pipes, \$124.94.....	399	86				
1 12-in. bend pipe, \$11.89 ; 21 single branches, \$92.98.....	104	87				
1 6x6 double branch, \$3.80 ; 23 elbows, \$33.83 ; 5 reducer sleeves, \$6.01.....	43	64				
2 1-in. couplings, 20c. ; 27 $\frac{1}{2}$ -in. brass couplings, \$2.43.....	2	63				
1 $\frac{1}{2}$ -in. brass tee, 53c. ; 38 iron plugs, \$1.56 ; 3 caps, \$3.82.....	5	91				
127 single cocks, \$58.79 ; 66 double cocks, \$59.20.....	117	99				
1 stop and waste cock, \$1.50 ; 1 hydrant jacket, \$4.80 ; 20 lbs. solder, \$4.....	10	30				
5 plain nipples, 90c. ; 56 brass screwed nipples, \$11.07.....	11	97				
24 brass caps, \$2.50 ; 28 bushings, \$1.59.	4	09				
45 lbs. cast iron grating, \$1.01 ; 1,263 $\frac{1}{2}$ lbs. lead pipe, \$49.97.....	50	98				
5,106 lbs. lead, \$159.54 ; 150 service plates, \$10.73.....	170	27				
517 cast iron gates, \$11.64 ; 100 ft. chain and links, \$9.04.....	20	68				
1,350 lbs. nails, \$37.73 ; 92 lbs. iron, \$1.45 ; 29 $\frac{1}{4}$ lbs. steel, \$2.59.....	41	77				
87 lbs. jute packing, \$6.09 ; 3 crossing plates, \$8.43 ; 2 files, 30c.....	14	82				
Galv'd iron pails, rope and cap pattern...	7	32				
19,600 bricks, \$156.73 ; 43 bbls. cement, \$93.11 ; 28 yds. sand, \$19.....	268	84				
5,806 ft. lumber, \$82.26 ; 3 $\frac{1}{4}$ c's c. blocks, \$18.38 ; $\frac{1}{4}$ toise macadam, \$1.92.....	102	56				
13 tons coal \$53.47 ; 31 $\frac{1}{2}$ gals. coal oil, \$5.36 ; 10 lamps and globes, \$5.87...	64	70				
Brooms, shovels, wrenches, wick, lye and gasoline .....	5	58				

Carried forward.....

5,136 54

7 E.

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	5,136	54				
2 pair rubber boots, \$8.75 ; 20 ft. 4-in tile pipe, \$1.50 ; 15 squares asphalt roof- ing, \$48.75.....		59 00				
Rivets and handles, \$2.14.....		2 14				
Repairing pavements, \$750.25 ; private drains, \$40.44.....		790 69				
Removing snow from hydrants, \$60.94 ; rent of 'phones, \$70.....		130 94				
Proportion of rent, Portland Street yard, \$46.70 ; advertising, \$28.50.....		75 20				
Labor .....	14,920	58				
			21,115	09		
<i>Cr.</i>						
Amount paid Treasurer for sundry ser- vices .....		98 95				
Material returned to stores.....		99 61				
			198	56		
					20,916	53
<b>MAIN PUMPING STATION.</b>						
1621.49 gals. cylinder oil, \$798.17 ; 1930.31 gals. engine oil, \$681.94 .....	1,480	11				
4,446 lbs. boiler purge, \$197.90 ; 200 lbs. lubricating grease, \$12 .....		209 70				
2,625 lbs. waste, \$167.68 ; 127 lbs. pack- ing, \$68.10 ; 309 lbs. gaskets, \$215.25 .....		451 03				
Steel pins, \$78.93 ; 1362½ lbs. phosphor bronze, \$231.52 ; 48 lbs. babbitt, \$12 .....		322 45				
1,781 lbs. iron castings, \$38.05 ; 21 pump rods and flanges, \$166.96 .....		205 01				
Rubber valves, section rings, matting, hose and boots .....		358 14				
Carbons, holders, switches, lamps and re- pairs .....		233 85				
46 cord slabs, \$132 ; repairs to boilers, \$501.80.....		633 80				
7,970 ft. lumber, \$122.74 ; 2,500 shingles, \$6 ; 503 lbs. sheet lead, \$39.21.....		167 95				
2 speed indicators, \$102 ; repairing chim- ney, \$95 .....		197 00				
Paint, oil, turps, etc. ....		20 25				
3,627½ lbs. iron, \$59.18 ; 232 lbs. steel, \$16.28 ; 320 lbs. scrap lead, \$9.60....		85 06				
4 asbestos cocks, \$39 ; valves and repairs to same, \$41.60 .....		80 60				
557 ft. 10-in. wrought iron pipe and fittings .....		118 01				
12-in. pipes, sleeves, single branch .....		83 99				
Glass, white lead, blue stone, plumbago and talow .....		26 11				
Brass pipe, fittings, nipples, floor plates, etc.....		81 34				
<i>Carried forward</i> .....	4,754	40			20,916	53



	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	4,754	40			20,916	53
Bricks, mortar, screws, pails, coal oil, lamps, etc .....	61	62				
Sundry material from general stores .....	237	71				
Rent of phones, \$120; car tickets, \$11; advertising, \$44.....	175	00				
Medical attendance (T. Walsh).....	10	00				
Travelling expenses, R. Pink to Boston ..	45	05				
Gas account paid by Treasurer .....	79	82				
Rent of water lots .....	1,540	00				
Labor .....	22,529	41				
9,839½ tons of bituminous coal slack, ....	24,151	99				
556¾ tons anthracite coal.....	1,870	67				
Carting coal and ashes.....	892	50				
Costs and interest <i>re</i> E. Rogers & Co. suit	35	00				
			56,383	17		
<i>Cr.</i>						
25,720 <sup>2000</sup> tons coal to Public Library.....	120	21				
32,320 <sup>2000</sup> " " Island .....	80	40				
820 lbs. scrap bronze.....	77	90				
401,645 <sup>2000</sup> tons scrap iron.....	478	06				
			756	57		
					55,626	60
METER AND MACHINE SHOPS.						
80 meter boxes, \$234.93; 56 meter box tops, \$48.36.....	283	23				
1,223½ lbs. phosphur bronze, \$191.03; 21 lbs. babbitt, \$4.83.....	195	86				
62 tons coal, \$302.42; 9½ cords wood, \$33.60; ½ bbl. boiler purger, \$19.30.	355	32				
5,804 lbs. iron, \$102.26; 364½ lbs. steel, \$23.87; 1990½ lbs. lead pipe, \$78.20.	204	33				
677 lbs. castings, patterns for fountain, \$28.62; 4 Way hydrants, \$239.45...	268	07				
3,720 ft. lumber, \$51.47; 6 bbls. cement, \$12.77; 127 lbs. packing, etc., \$22.70	86	94				
Repairing test house boiler.....	55	00				
Steel plates, angle iron, chain, links and washers.....	88	39				
6 rubber rings, \$39.50; 2 rubber rollers, \$14; 1 rubber joint, \$5.50.....	59	00				
3 1-in. meters, \$69; 1 3-in. meter, \$76; 50 meter dials, \$20.43.....	165	43				
75 meter glasses, \$4.50; 5 sets incandes- cent gear, \$15.....	19	50				
21 valves, \$14.52; 3 meter screens, \$24; 165 lbs. waste, \$10.90.....	49	42				
Sundry tools, leather belting, belt laces, etc .....	118	83				
1,025 bricks, \$6.65; 184 lbs. scrap lead, \$6.32; sand, nails, etc.....	36	98				
Paint, boiled oil turps, brushes, etc.....	19	46				
<i>Carried forward</i> ..	2,005	76			76,543	13

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	2,005	76			76,543	13
293 ft. 3 in. w. iron pipe and sundry iron fittings, etc.....	118	23				
Brass coupling's, nipples, etc.....	49	56				
2 pair rubber boots, \$8.75; rubber cement, \$1.67; wax candles, \$6.84 .....	17	26				
Car tickets, \$31.00; refund for loan of meters, \$65 .....	96	00				
Labor .....	8,014	33				
			10,301	14		
<i>Cr.</i>						
Amounts paid Treasurer.....	197	81				
Labor charged other departments.....	1,247	52				
13,134 lbs. iron charged other departments .....	204	11				
385 $\frac{3}{4}$ lbs. steel charged other departments.	31	03				
840 lbs. scrap brass.....	61	80				
9 pieces pipe returned to stores.....	8	93				
500 stop cock rods delivered to stores....	110	00				
			1,861	17		
					8,439	97
<b>PRESS AND STOREHOUSE.</b>						
1,308 ft. lumber, \$19.26; 3,000 shingles, \$7.50.....	26	76				
1,699 lbs. castings, \$28.88; 175 $\frac{1}{2}$ lbs. phosphor bronze, \$29.84.....	58	72				
299 lbs. iron plates, \$5.08; 1,385 lbs. iron tops, \$23.55.....	28	63				
845 lbs. hydrant sleeves, \$14.36; 356 lbs. leather, \$48.40 .....	62	76				
2,786 lbs iron, \$45.76; 5 $\frac{3}{4}$ lbs. steel, 69c.; 30 lbs. waste, \$1.90 .....	48	35				
19 tons coal, \$93.93; 1 $\frac{1}{2}$ cords wood, \$6.41	100	34				
15 files, \$2.65; 47 $\frac{1}{2}$ gals. engine oil, \$16.15	18	80				
Stove, stove pipes, elbows and mica.....	22	65				
Paint, oil, turps, glass, putty, etc.....	9	16				
Tools, fittings, hardware and repairs.....	30	26				
Car tickets, \$22; pattern, \$67.34; rent of phones, \$45.....	134	34				
Gas account paid by City Treasurer.....	59	26				
Labor .....	6,755	99				
			7,356	02		
<i>Cr.</i>						
250 stop cock rods delivered to stores....	55	00				
250 lbs. scrap brass and 225 lbs. scrap lead	24	75				
Amount paid for flooding rink.....	1	75				
Amount paid for moving hydrant on James Street .....	25	00				
			106	50		
					7,249	52
<i>Carried forward</i> .....					92,232	62

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....					92,232	62
RESERVOIR.						
5,095 ft. lumber, \$96.54; 5,000 bricks, \$29.75; 66 bbls. cement, \$139.79....	266	08				
139 loads stone chips, \$69.50; 1,060 lbs. iron gratings, \$17.49 .....	86	99				
706 plants and trees, \$143.25; 4,550 flower pots, \$86. ....	229	25				
407 lbs. seeds, \$112.35; 841 yds. sod, \$27.15; 200 ft. hose, \$20 .....	159	50				
74 tons coal, \$389.95; 7 cords wood, \$31; 1 Eclipse pump, \$10.50 .....	431	45				
4 pair rubber boots, \$16.25; 10 bbls. lime, \$4.75; 2 lawn mowers, \$29. ....	50	00				
Iron, steel, iron pipe, fittings, etc. ....	48	74				
Tools, paint, oil, turps, glass and putty, etc.	93	43				
Sundry hardware, \$20.15; 100 ft. 3-in. tile pipe, \$2. ....	22	15				
Horse feed and straw, \$64.44; sharpening tools, \$2.40 .....	66	84				
Car tickets, \$15; hack hire, \$7; rent of phone, \$55 .....	77	00				
Electric lights .....	844	95				
Gas accounts paid by Treasurer .....	37	76				
Removing defective flues at green house..	51	85				
Labor .....	7,136	60			9,602	59
HIGH LEVEL STATION.						
1,500 ft. lumber, \$35.01; 500 bricks, \$17.50; 710 lbs. fire clay, \$4.26 .....	56	77				
1,174 tons coal, \$5,566.32; carting coal, \$366.07 .....	5,932	39				
1,141½ lbs. phosphor bronze castings, \$198.22; 55 lbs. packing, \$26.90 ....	225	12				
127 gals. cylinder oil, \$68.17; 47½ gals. engine oil, \$16.15 .....	84	32				
393 lbs. boiler purge, \$19.65; 4 cords wood, \$12.40; 97½ lbs. special packing, \$50.20 .....	82	25				
1 pair rubber boots, \$3.75; rubber valves, hose and cement, \$21.63 .....	25	38				
Valves, iron pipe and fittings .....	71	59				
Paint, varnish, oil, putty, turps, etc. ....	27	34				
Hardware, tools, iron, steel, etc. ....	34	23				
Repairing boiler, \$9.80; car tickets, \$20; hack hire, \$7 .....	36	80				
Rent of phone, \$47; expenses to London and St. Thomas, \$16.30 .....	63	30				
Gas account paid by Treasurer .....	216	98				
Labor .....	3,370	66			10,227	13
<i>Carried forward</i> .....					112,062	34

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....					112,062	34
<b>MISCELLANEOUS.</b>						
<i>Office.</i>						
Salaries, \$526.62; postage stamps, \$55; car tickets, \$25.....	606	62				
Books, stationery, printing publications, etc.....	183	30				
Rent of telephone.....	12	50				
			802	42		
<i>Cartage.</i>						
Horse feed and straw.....	742	45				
Horse shoeing, \$102.28; veterinary ser- vices, \$6.....	108	28				
Wagon repairs, \$76.48; harness parts and repairs, \$72.79.....	149	27				
Horse blankets, \$11.80; paint, varnish and sundries, \$25.06.....	36	86				
Labor.....	2,450	41				
			3,487	27		
<i>Rentals and Miscellaneous.</i>						
Lumber, cordwood, stationery and testing water.....	58	61				
Lithographing plans, \$120; painting and repairing 9 buoys, \$66.66.....	186	66				
Printing appendix to annual report.....	231	60				
Car tickets, \$25; stenographers charges, Bain v. Heal, \$84.70.....	109	70				
Rent of Portland Street yard, proportion	42	00				
Rent of water lot.....	300	00				
Refund for use of sand pump.....	25	00				
Gas accounts, \$20.16; printing, \$54.75; advertising, \$200.55.....	275	46				
Labor.....	33	00				
			1,262	03		
					5,551	72
<b>WATER DISTRIBUTION.</b>						
Horse hire, \$17.60; 1 set wheels, \$20.70; 1,425 ft. lumber, \$18.24.....	56	54				
6 taps, \$4.50; 2 doz. tin horns, \$2.00....	6	50				
50 ft. hose, \$22.50; labor, \$20.....	42	50				
Water supply from Toronto Junction....	660	00				
					765	54
<b>ISLAND WATER SUPPLY.</b>						
<i>Maintenance.</i>						
625 ft. wrought iron pipe, \$69.36; 115 iron fittings, \$15.73.....	85	09				
<i>Carried forward</i> .....	85	09			118,379	60

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	85	09			118,379	60
25 valves, \$47.36 ; 12 sleeves, boxes, cocks and rods, \$19.57.....	66	93				
248½ lbs. iron and steel, \$4.17 ; 1,040 lbs. pig lead, \$34.84.....	39	01				
957½ lbs. lead pipe, \$39.24 ; 64½ lbs. pack- ing, \$8.90.....	48	14				
38 <sup>320</sup> / <sub>1000</sub> tons coal, \$106.78 ; carting coal, \$4.50.....	111	28				
4,182 ft. lumber, \$79.90 ; 4,500 shingles, \$12.33 ; 120 ft. hose, \$33.75.....	125	98				
45 gals. coal oil, \$7.65 ; wick, waste, plumb- bago and lye, \$6.89.....	14	54				
Guage glasses, flue brushes, nails and bolts	13	10				
Stocks and dies, vise, pipe cutter and sun- dry tools.....	55	98				
Engine and cylinder oil, signal oil lamps, glasses, etc.....	18	90				
Screen, fire bricks and clay, cement and scales.....	66	76				
Tarpaulin, eave troughing, vitrified pipe, etc.....	51	27				
Iron wheelbarrows, locks, hinges, catches, etc.....	24	20				
Towing, \$51 ; printing, \$20.50 ; rent of phones, \$46.88.....	118	38				
Rent of water lot, \$87.50 ; labor, \$542.80.	630	30				
Furnishings for caretaker's house.....	101	91				
					1,571	77
<b>CONSTRUCTION.</b>						
<i>House Services.</i>						
45,625 lbs. lead pipe.....	2,069	86				
349 Large stop cock boxes, \$405.89 ; 500 small stop cock boxes, \$334.60.....	740	49				
843 stop cock rods, \$184.56 ; 129½ single cocks, \$33.04.....	217	60				
396½ single cocks, \$164.71 ; 104½ single cocks, \$60.10.....	224	81				
27 ¾-in. single cocks, \$20.67 ; 34 1-in. single cocks, \$40.03.....	60	70				
73 ½x¾ double cocks, \$67.12 ; 163 ½-in. driving nipples, \$22.95.....	90	07				
78½ driving nipples, \$18.21 ; 28 ¾ driving nipples, \$7.84.....	26	05				
20 plain nipples and blocks, \$3.60 ; 74 brass screwed nipples, \$18.57.....	22	17				
476 brass couplings, \$46.83 ; 13 brass caps and tees, \$4.73.....	51	56				
14 valves, \$29.00 ; 13 4-in. iron valve boxes, \$19.50.....	48	50				
2,383 lbs. round service plates, \$46.46 ; 583 lbs. washers, \$11.08.....	57	54				
<i>Carried forward</i> .....	3,609	35			119,951	37



	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	3,609	35			119,951	37
10,392 lbs. iron, \$160.98 ; 63½ lbs. steel, \$4.59 ; 203 lbs. scrap lead, \$6.09....	171	66				
476 lbs. pig lead, \$15.47 ; 142½ lbs. block tin, \$7.13 ; 15 lbs. jute packing, \$1.05.....	23	65				
7 lengths cast iron pipe, \$89 ; 10 sleeves, branches and s. pipes, \$22.75.....	111	75				
688 ft. 8 in. wrought iron pipe, \$77.11 ; 70 elbows, tees, bushings, etc., \$11.28	88	39				
1 round valve chamber top, \$12.49 ; 1,668 ft. lumber, \$24.85 ; 800 lbs. nails, \$20.92.....	58	26				
2 crossing plates, \$5.62 ; 1 bbl. cement, \$2.17 ; 3 iron stamps, \$15.....	22	79				
2 tons coal, \$9.72 ; 1 pair rubber boots, \$3.00 ; 100 lbs. scrap leather, \$5....	17	72				
Sundry tools and material.....	20	96				
Repairing pavements.....	33	77				
Labor .....	3,470	63				
			7,628	93		
<i>Cr.</i>						
1,308 lbs. scrap lead delivered to stores...	39	24				
271 lbs. solder, delivered to stores.....	11	68				
Amount paid Treasurer for sundry services	2,115	58				
			2,166	50		
CONNECTING DEAD ENDS.					5,462	43
Contract work on pipe.....	105	00				
" " pipe laying.....	89	16				
19 lengths 4-in. pipe, \$68.40 ; 3 lengths 12-in. pipe, \$49.20.....	117	60				
108 lengths 6-in. pipe .....	458	00				
4,000 bricks, \$12.38 ; 8 yds. sand, \$6 ; 2 bbls. cement, \$4.24.....	22	62				
Labor .....	190	31			982	69
<i>Short Lengths and Extra Fire Hydrants.</i>						
Contract work on pipe laying....	51	54				
15 hydrants, \$442.50 ; 3,729 lbs. pig and scrap lead, \$110.78.....	553	28				
164 lengths 6-in. pipe, \$913.50 ; 9 lengths 12-in. pipe, \$147.60.....	1,061	10				
14 long valve chamber tops, \$91.84 ; 1 round valve chamber top, \$12.35....	104	19				
5 3-in. valves, \$38 ; 7 4-in. valves, \$59.50 ; 16 6-in. valves, \$216.....	313	50				
62 sleeves, \$102.71 ; 33 single branches, s. pipes and bends, \$95.07.....	197	78				
<i>Carried forward</i> .....	2,281	39			126,396	49

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	2,281	39	.....		126,396	49
5 12-in. valves, \$162.50; 22 centres, elbows and bends, \$10.38.....	172	88				
1 4-in. valve box, \$1.56; 14 bbls. cement, \$29.98; 1 crossing plate, \$2.81.....	34	29				
10,800 bricks, \$65.83; 7 yds. sand, \$4.73; 65 lbs. jute packing, \$4.55.....	75	11				
Coal and coal oil.....	3	92				
Labor .....	1,653	92				
			4,221	51		
<i>Cr.</i>						
12-in pipes returned to stores.....	262	40				
2 hydrant bodies, \$35; 1 hydrant jacket, \$7 .....	42	00				
			304	40		
CONCRETING RESERVOIR.					3,917	11
384 bbls. and 705 bags cement.....	2,196	29				
124 yds. gravel, \$96.60; 150 yds. broken stone, \$198.75.....	295	35				
8,787 ft. lumber, 119.09; barrows, axes, pails, nails, etc., \$22.23.....	141	32				
Labor .....	4,431	11			7,064	07
NEW CLOSETS AT MAIN PUMPING STATION.						
4,000 bricks, \$25.20; 6 yds. sand, \$4.05; 2,231 ft. lumber, \$50.42.....	79	67				
366 ft. slate, \$23.68; doors, frames and windows, \$29.78.....	53	46				
Pipe junctions and bends, \$15.30; trap, tees, etc., \$9.64 .....	24	94				
Locks, padlocks and hinges, \$14.45; nails and spikes, \$5.54 .....	19	99				
Soil pipe, lime, mortar, stain paint, etc.. Closets, bath, basin, urinal and urinal stall.....	48	61				
	221	50				
Glass, putty, galvanized iron pails, gasoline Repairing eavetrough, \$5.74; sundry hard- ware, \$15.31 .....	14	53				
	21	05				
Labor .....	321	89			805	64
SIX FOOT STEEL CONDUIT.						
Contract work.....	33,606	22				
5,565 ft. lumber, \$128.51; 6,000 shingles, \$15.60; 259 lbs. nails, \$11.79.....	155	90				
Cast iron saddle, \$35; advertising, \$533.32 Consultation fee, Freshfield & Williams..	567	32				
	102	20				
<i>Carried forward</i> .....	34,431	64	.....		138,183	31

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	34,431	64	.....		138,183	31
Photos, \$22; expenses to Collin's Bay, \$19.55.....	41	55				
23½ lbs. rope, \$5.10; 2 tons coal, \$8.72; 1 pair diver's mitts, \$6.75.....	20	57				
Paint, boiled oil, turps, white lead, shellac and brushes.....	13	39				
Hip boots, oiled coat, poles, ferry tickets	19	00				
Stove, pipe and elbows, \$17.74; sundry fittings and material, \$57.70.....	76	64				
Labor .....	1,014	06				
<b>ANCHORING CONDUIT.</b>					35,616	85
Contract work.....	12,436	99				
Building crib, \$241.03; 12 toise stone, \$72; boat hire and towing, \$32.50..	345	53				
Advertising, \$18; 3 bbls. cement, \$6.51; sundry material, \$17.01.....	41	52				
Labor .....	587	16			13,411	20
<b>REVENUE MAINS.</b>						
6-in. cast iron pipe, \$148.75; laying pipe, \$169.99 .....	318	74				
Labor .....	70	50			389	24
<b>NEW WATER SUPPLY.</b>						
Mr. Mansergh, professional services.....	9,733	33				
Mr. E. B. Shuttleworth, professional ser- vices. ....	174	75				
Maps, \$2; plans, \$150; printing, \$75...	227	00				
Ferry tickets, \$15; 80 ft. pipe, \$421.....	436	00			10,571	08
<b>CONNECTION BETWEEN PUMPING WELLS.</b>						
Contract work.....					3,287	47
<b>CONSTRUCTION.</b>						
<i>Island Water Works.</i>						
890 lengths, 4-in. cast iron pipe.....	3,204	00				
700 lengths, 6-in. cast iron pipe.....	3,675	00				
Pumping engine.....	2,260	00				
24,607 ft. lumber, \$452.64; 10,900 bricks, \$68.25.....	520	89				
Driving piles, \$160; smoke stack, \$175..	335	00				
3,860 lbs. lead pipe, \$149.86; 12,870 lbs. pig lead, \$436.62.....	586	48				
<i>Carried forward</i> .....	10,581	37	.....		201,459	15

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	10,581	37			201,459	15
46 bbls. cement, \$97.40; 32 bbls. lime, \$15.30; 17,000 shingles, \$43.70.....	156	40				
765 lbs. nails, \$20.50; hauling material to island, \$111.....	131	50				
Doors, frames, sashes, cedar posts, etc...	143	00				
Sleeves, pipes, branch pipes and single branches.....	187	66				
50 meter boxes, \$87.10; 49 valves, \$243.25; 5 valve boxes, \$7.57.....	337	92				
Paint, boiled oil, turps, dryers, etc.....	86	70				
Wrought iron pipes and fittings.....	68	35				
30 meter plate covers, \$30; iron, steel and tools, etc., \$46.95.....	76	95				
100 stop cock rods, \$12; 36 ½-in. single cocks, \$13.68.....	25	68				
6 meter plates, \$10.23; 262 lbs. jute pack- ing, \$18.77.....	29	00				
161 single half boxes, \$64.40; machine, cylinder and signal oil, \$4.65.....	69	05				
10 tons coal, \$43.75; 79½ lbs. tin, \$8.85; patterns, \$31.....	83	60				
3 pair rubber boots, \$15.25; 31 gals. coal oil, \$5.27.....	20	52				
150 ft. 10 in. lap pipe, \$64; 15 ft. galvan- ized iron roofing, \$2.25.....	66	25				
Hack hire, \$1.25; car tickets, \$1; boat hire, \$15.50.....	17	75				
Ferry tickets, \$160; advertising, \$105.50.	265	50				
Labor.....	3,548	49			15,895	69
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24 INCH MAIN, FRONT STREET.						
Advertising.....	536	25				
Labor.....	15	00			551	25
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BATHURST STREET MAIN.						
25 lengths 6-in. pipe.....	131	25				
Valve sleeve, elbows, etc.....	32	38				
Labor.....	107	72			271	35
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LAKE STREET MAIN.						
50 lengths 12-in. pipe.....	820	00				
Bricks, cement, etc.....	10	62				
Labor.....	281	84			1,112	46
<hr/>						
<i>Carried forward</i> .....					219,289	90

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....					219,289	90
RENEWALS.						
<i>House Service.</i>						
276 single iron boxes, \$179.40; 183 double iron boxes, \$210.45 .....	389	85				
389 iron stop cock rods, \$85.58; 1,540 lbs. lead pipe, \$63.12 .....	148	70				
12 $\frac{3}{8}$ -in. single cocks, \$3.84; 51 $\frac{1}{2}$ -in. single cocks, \$22.44 .....	26	28				
15 $\frac{3}{8}$ -in. single cocks, \$8.70; 8 $\frac{3}{4}$ -in. single cocks, \$6; 12 1-in. single cocks, \$11.04 .....	25	74				
31 $\frac{1}{2}$ x $\frac{3}{4}$ double cocks, \$28.52; 5 4-in. valve boxes, \$7.50 .....	36	02				
Brass screwed nipples and brass couplings, etc .....	8	80				
Driving nipples, bushings, service plates, etc .....	14	68				
Nails, 200 lbs. ....	6	46				
Labor .....	880	75				
RE-BUILDING WELL IN OLD ENGINE HOUSE.					1,537	28
18,535 lbs. well plates and cutting.....	569	50				
1,144 lbs. castings, \$19.45; 1,000 bolts, \$70; 61 lbs. washers, \$6.10 .....	95	55				
33 lbs. cement, \$69.87; 27 yds. sand, \$15.45; 20 yds. gravel, \$17.75 .....	103	07				
674 $\frac{1}{2}$ lbs. sheet lead, \$40.47; 76 lbs. lead pipe, \$2.94 .....	43	41				
4 rubber coats, \$18; 1 pair rubber boots, \$5 .....	23	00				
Patterns, \$11.65; lumber, rivets and hack hire, \$5.84 .....	17	49				
Refreshments for men on night work. ....	69	55				
Labor .....	632	77				
RELAYING INTAKE PIPE.					1,554	34
Contract work.....					2,724	30
REPAIRS TO OLD ENGINE HOUSE.						
1,024 slates, \$61.44; 3 sheets galvanized iron, \$4.50 .....	65	94				
71 ft. galvanized iron pipe, \$7.60; 28 lbs. solder, \$5.75 .....	13	35				
198 lbs. scrap lead, \$5.94; 42 lbs. lead pipe, \$1.76 .....	7	70				
Double iron box nails, cement, etc. ....	5	96				
Sundry material .....	38	43				
<i>Carried forward</i> .....	131	38			225,105	82



	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....	131	38	.....	.....	225,105	82
Contract work. Hawley, Down-Draught Co. ....	347	28				
Labor .....	175	40				
					654	06
<b>ALTERING G. T. R. MAINS.</b>						
5 lengths 30-in. pipe, \$362.90; hauling pipe, \$28.50.....	391	40				
546 lbs. iron beams, \$10.92; 16 bbls. cement, \$33 89 .....	44	81				
5 $\frac{1}{10}$ tons coal, \$17.84; 4 cords wood, \$13.16; 3,000 bricks, \$19.50.....	50	59				
13 yds. sand, \$4.50; excavating, \$36.10; expenses to Hamilton, \$4.....	44	60				
Labor .....	385	22				
					916	53
<b>PIPE LAYING RENEWALS.</b>						
Contract work, \$195.56; excavating, \$27.63	223	19				
Repairing pavement, \$11.97; 1 ton coal, \$3.75 .....	15	72				
					238	91
<b>HAWLEY DOWN-DRAFT FURNACES.</b>						
Contract work.....					5,418	22
<b>INSPECTION AND EXAMINATION OF CONDUIT.</b>						
Lumber, \$104.26; use of cable for signals, \$150 .....	254	26				
Use of compound engine, \$87.50; tug and boat hire, \$108.75. ....	196	25				
91 $\frac{460}{1000}$ tons coal, \$38.24; rubber boots, tubing, etc., \$21.25.....	59	49				
Nails, waste, iron, steel, etc. ....	20	65				
Rent of 'phones, \$24.38; hack hire, \$2.25; advertising, \$34.50.....	61	13				
Labor .....	1,036	38				
					1,628	16
<b>DISCHARGE PIPES, NOS. 1, 2 AND 3 ENGINES.</b>						
33 lengths 12-in. pipe, \$541.20; 7 12-in. bends, elbows, etc., \$30.30.....	571	50				
1 6-in. sleeve, \$1.71; 1 6x12 single branch, \$6.23; 2 12x12 single branches, \$8.45	16	39				
1,050 lbs. pig lead, \$31.50; coal and yarn, \$3.62.....	35	12				
					623	01
<i>Carried forward</i> .....					234,584	71

	\$	c.	\$	c.	\$	c.
<i>Brought forward</i> .....					234,584	71
NEW METERS.						
Contract work.....					4,477	00
SPECIAL SERVICES AT MAIN PUMPING STATION.						
300 ft. 6-in. pipe, and junction . . . . .	34	94				
14 bbls. cement, \$30.38; 2,000 bricks, \$12.60.....	42	98				
Piling, \$55; lumber and sand, \$3.90.....	58	90				
Hire of sinking pump . . . . .	100	00				
Labor . . . . .	220	73				
					457	55
GENERAL STORES.						
Amount of stock on hand December 31st, 1896, as per certified schedule in Voucher No. 507.....	19,037	39				
					239,519	26

NOTE.—For Schedule No. 1, "Cash Expenditure on Maintenance Account," etc., see page 96.  
For Schedule No. 10, "Analysis of Expenditure at Main Pumping Station," see page 98.

# SCHEDULE No. 2.

## STATEMENT OF WATER PUMPED BY ENGINES NOS. 1, 2 AND 3 FOR THE YEAR 1896.

Month.	No. of Days on which Engines working.			Number of Hours working each Month.				Number of Strokes for each Engine per Month.			Quantity of Water Pumped per Month by each Engine in Imp. Gals.—Gross.			Total Quanti- ty Pumped in Imperial Gallons— Gross.	Percentage of Slip.	Total Quanti- ty Pumped in Imperial Gallons— Net.	Average Pressure on Pumps.	Average Level of Water in Well below Zero.	Total Quanti- ty of Coal Consumed per Month by Nos. 1, 2 and 3 Engines.	Coal Con- sumed while Banking Fires, etc.		Coal Con- sumed while Pumping.			
	No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.	Tons.							Lbs.	Tons.	Lbs.			
				h.	m.	h.	m.	h.	m.									Ft.	In.	Tons.	Lbs.	Tons.	Lbs.	Tons.	Lbs.
January																									
February																						60	1,570		
March																						21	1,450		
April	2	11		2 50	196 50			2,647	139,537		603,516	61,047,283		64,650,779	6	60,771,752	94.7	4	4	187	1,350	5	0	182	1,350
May																									
June	2	3	2	12 55	43 15	7 05		9,390	29,868	5,394	2,140,920	13,709,412	2,621,484	16,471,816	6	17,363,508	94.5	3	9	57	1,170	5	0	52	1,170
July	4	5		37 55	48 30			28,807	35,808		6,567,996	16,435,872		23,003,868	6	21,623,636	96.3	5	1	59	260	5	0	54	260
August		1			3 35				1,871			868,789		868,789	6	816,662	95.0	5	1	5	0	0	0	5	0
September		1			3 05				1,794			823,446		823,446	6	774,040	92.0	4	0	15	1,760	7	0	8	1,760
October		2			9 0				6,101			2,800,359		2,800,359	6	2,632,338	94.0	4	11	22	1,010	7	0	15	1,510
November	2	6	1	4 55	97 55	1 35		3,783	57,219	1,230	862,524	12,644,532	597,780	14,104,836	6	13,258,546	94.5	4	4	92	1,040	7	0	63	1,040
December		3			50 20				32,930			15,114,870		15,114,870	6	14,207,978	95.	4	9	45	415	5	0	40	415
Totals	10	32	3	58 35	452 30	8 40		44,627	305,128	6,624	10,174,956	126,444,563	3,219,261	139,838,763	6	131,348,460		4	6	485	1,005	123	1,020	422	1,505
Monthly Av'go				4 86	37 69	0 70		3,719	25,427	552	847,913	10,537,047	268,272	11,653,230		10,945,705	94.5			40	917	10	585	35	459
Daily Average				0.15	1.23	.02		121.9	833.6	18.	27,800	345,476	8,795	382073.1		358875.				1	653	0	674	1	310

SCHEDULE No. 3.

STATEMENT OF WATER PUMPED BY ENGINES NOS. 4 AND 5 FOR THE YEAR 1896.

Month.	No. of Days on which Engines working.		Number of Hours working each Month.		Number of Strokes made by Engines each Month.		Quantity of Water Pump- ed each Month by each Engine—Imperial Gallons—Gross.		Total Quan- tity Pumped by Nos. 4 and 5 En- gines— Imperial Gallons— Gross.	Percentage of Slip.	Total Quan- tity Pumped Imperial Gallons— Net.	Average Pressure on Pumps.	Average Lift by Engines.	Total Quan- tity of Coal used under Boilers each Month.	Coal Con- sumed for Banking Fires.		Coal Con- sumed while Pumping.	
	No. 4.	No. 5.	No. 4.	No. 5.	No. 4.	No. 5.	No. 4.	No. 5.							Tons.	Lbs.	Tons.	Lbs.
January .....	31	31	h. m. 695 45	h. m. 728 30	1,364,265	1,459,145	287,859,915	306,420,450	594,280,365	2	582,394,758	Pounds. 95.4	Feet. 19.7	Tons. Lbs. 800 250	Tons. Lbs. 69 1,000	Tons. Lbs. 730 1,250		
February .....	29	29	630 25	693 30	1,459,145	1,461,670	264,965,360	306,950,700	571,916,060	2	560,477,739	94.7	19.8	743 1,820	87 1,000	656 820		
March.....	31	31	690 55	735 30	1,419,400	1,573,840	299,493,400	330,506,400	629,999,800	2	617,399,804	95.2	20.2	806 1,450	70 1,000	736 450		
April .....	25	28	544 55	640 30	1,106,707	1,332,611	233,515,177	279,848,310	513,363,487	2	503,096,218	95.7	18.8	649 100	43 00	606 100		
May.....	31	31	667 0	714 50	1,313,443	1,455,010	283,466,473	305,552,100	589,018,573	2	577,238,202	96.0	18.8	749 360	43 1,000	705 1,360		
June .....	28	30	618 10	710 15	1,317,573	1,482,654	278,007,903	311,357,340	589,365,243	2	577,577,939	97.0	19.0	724 825	33 00	691 825		
July.....	30	31	681 0	736 50	1,355,701	1,490,449	286,052,911	312,994,290	599,047,201	2	587,066,257	96.8	19.0	757 743	28 00	729 743		
August .....	31	31	722 15	733 35	1,453,378	1,502,091	306,662,758	315,439,110	622,101,868	2	609,659,831	96.6	19.2	775 780	37 1,000	737 1,780		
September.....	30	30	612 08	713 15	1,195,359	1,306,817	252,220,749	274,431,570	526,652,319	2	516,119,273	93.2	18.3	681 220	39 1,000	641 1,220		
October .....	31	31	725 45	733 21	1,394,099	1,315,788	294,154,889	276 315,180	570,470,369	2	559,060,962	95.2	19.0	751 1,055	40 00	711 1,055		
November .....	30	26	561 58	613 25	1,087,634	1,164,593	229,490,774	244,564,530	474,055,304	2	464,574,198	94.8	18.4	653 715	48 00	605 715		
December .....	30	31	538 96	705 10	1,032,366	1,368,327	217,829,226	287,348,670	505,177,896	2	495,074,339	95.2	18.9	725 1,185	58 930	667 255		
Totals.....	357	360	7,722 52	8,458 11	15,529,070	16,912,995	3,233,719,535	3,551,728,950	6,785,448,485	....	6,649,739,520	.....	.....	8,817 1,503	598 930	8,219 573		
Monthly Averages ..	29.75	30	643 34	704 51	1,294,089	1,409,416	269,476,628	295,977,412	565,454,040	....	554,144,960	95.4	19.0	734 1,625	49 1,744	684 1,881		
Daily Averages ....	.....	.....	21 37	23 29	43,498	46,980	9,058,037	9,865,913	18,923,950	....	18,545,471	95.4	19.0	24 316	1 1,279	22 1,037		

SCHEDULE No. 4.  
RECORD OF WATER RE-PUMPED AT HIGH LEVEL STATION FOR THE YEAR 1896.

Month.	Number of Hours Engines Working.		Number of Revolutions made by Pumps.		Quantity of Water Re-Pumped.		Total Quantity of Water Re-Pumped by both Engines in Imperial Gallons. Gross.	Percentage of Slip.	Total Quantity of Water Re-Pumped Imperial Gallons. Net.	Average Pressure on Force Mains.	Average Pressure on Suction Main.	Total Quantity of Coal Consumed under Boilers.	Coal Consumed for Banking Fires, Raising Steam, Etc.	Coal Consumed while Pumping.
	No. 1.	No. 2.	No. 1.	No. 2.	No. 1.	No. 2.								
	h. m.	h. m.										Tons. Lbs.	Tons. Lbs.	Tons. Lbs.
January .....	496 ..	454 30	1,027,450	1,210,551	48,906,620	57,622,227	106,528,847	2	104,398,271	52.37	16.93	91 1,400	9 600	82 800
February .....	464 ..	432 ..	1,001,355	1,175,595	47,664,498	55,958,322	103,622,820	2	101,550,364	52.65	15.35	91 1,400	8 1,400	83 ....
March.....	495 ..	448 30	1,128,003	1,239,574	53,692,943	59,003,722	112,696,665	2	110,442,732	52.86	15.04	98 360	9 600	88 1,760
April .....	446 40	394 ..	970,895	996,260	43,585,584	45,296,460	88,882,044	2	87,104,404	52.54	15.96	81 800	9 600	72 200
May .....	496 ..	444 30	1,000,884	1,068,674	44,038,896	47,021,656	91,060,552	2	89,239,341	52.80	15.59	81 400	9 600	71 1,800
June .....	480 ..	471 ..	919,631	1,200,366	40,463,764	52,816,104	93,279,868	2	91,414,271	52.62	15.61	79 800	9 ....	70 800
July .....	496 ..	496 ..	989,960	1,241,899	43,558,240	54,643,536	98,201,796	2	96,237,761	52.63	15.63	82 1,200	9 600	73 600
August .....	496 ..	495 ..	1,021,707	1,244,225	44,955,108	54,745,900	99,701,008	2	97,706,988	52.70	15.94	78 600	9 700	68 1,900
September.....	480 ..	476 30	962,342	1,173,254	42,343,048	51,623,176	93,966,224	2	92,086,900	52.78	13.76	78 725	9 600	69 125
October .....	496 ..	492 30	968,341	1,182,543	42,607,004	52,031,892	94,638,896	2	92,746,119	52.76	12.23	89 810	9 1,200	79 1,610
November .....	480 ..	471 ..	833,169	1,151,898	36,659,436	50,243,512	86,902,948	2	85,164,890	52.89	16.54	84 1,925	10 100	74 1,825
December .....	499 ..	487 30	893,310	1,171,477	39,805,640	51,544,988	90,850,628	2	89,033,616	52.81	17.14	91 350	11 1,100	79 1,250
Totals.....	5,824 40	5,563 ..	11,717,047	14,056,316	527,780,781	632,551,515	1,160,332,296	....	1,137,125,657	.....	... ..	1,028 770	114 100	914 670
Monthly Averages ..	485 36	463 58	976,420	1,171,359	43,981,731	52,712,626	96,694,358	....	94,760,471	52.70	15.47	85 1,397	9 1,008	76 389
Daily Averages.....	15.91	15.19	32013.8	38405.2	1,442,024	1,728,282	3,170,306	....	3,106,900	52.70	15.47	2 1,619	0 623	2 996



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## SCHEDULE No. 5.

RECORD OF GAUGING AT ROSEHILL RESERVOIR FOR EACH MONTH OF 1896.

Month.	Elevation of Lowest Water above Zero.	Elevation of Highest Water above Zero.	Average Elevation above Zero.	Average Depth in Reservoir.	Average Contents in Imperial Gallons.
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	
January .....	214 4	216 1	215 2	19 2	30,951,624
February .....	213 0	216 0	214 10	18 10	30,024,272
March .....	212 9	216 0	214 1	18 1	28,120,960
April.....	214 0	215 11	215 0	19 0	30,447,230
May .....	213 0	216 2	214 7	18 7	29,389,835
June .....	214 3	216 2	215 4	19 4	31,456,018
July .....	214 0	216 2	215 3	19 3	31,203,821
August .....	214 3	216 2	215 3	19 3	31,203,821
September .....	198 6	216 1	215 1	19 1	30,699,427
October .....	201 8	215 5	211 10	15 10	32,583,399
November .....	215 0	216 1	215 4	19 4	31,456,018
December .....	214 7	216 1	215 5	19 5	31,708,215
Averages .....			214 9	18 9	29,937,053

NOTE.—The returns from 19th September to 17th October, inclusive, are omitted from this Schedule, the reservoir being empty between those dates for cleaning and concreting the bottom.

The average depth of water in the Reservoir for the year (excluding above period) was 18 ft. 9 in., equal to an elevation of 214 ft. 9 in. above zero.

SCHEDULE No. 6.  
COMPARATIVE STATEMENT SHOWING NUMBER OF GALLONS PUMPED, QUANTITY AND COST OF FUEL, ETC.,  
FROM 1876 TO 1896.

YEAR.	Total Water Pumped — Imp. Gals.	Quantity of Fuel.  Lbs.	Total Cost of Fuel.  \$ c.	Average Daily Quantity of Water Pumped — Imp. Gals.	Average Daily Consumption. of Coal.  Lbs.	Water Pumped per Pound of Fuel. — Imp. Gals.
1876	1,625,139,876	6,998,282	19,645 75	4,451,302	19,093	232.55
1877	2,633,433,932	10,407,992	25,556 29	7,214,887	28,515	253.02
1878	1,417,370,918	8,120,000	15,196 20	3,883,208	22,246	174.55
1879	1,610,101,542	10,872,211	19,313 07	4,411,245	29,787	148.09
1880	1,785,859,706	11,694,808	28,455 72	4,879,422	31,953	152.17
1881	1,910,430,419	12,891,874	31,410 04	5,234,056	33,950	154.18
1882	2,108,933,115	11,985,556	30,170 64	5,777,899	32,015	180.47
1883	2,809,956,484	17,266,679	43,529 08	7,698,511	47,306	162.74
1884	3,645,442,082	19,920,782	52,525 56	9,960,224	54,428	183.00
1885	3,537,482,598	18,611,465	46,589 27	9,691,733	51,031	189.73
1886	4,134,376,998	19,285,371	41,979 32	11,327,060	52,837	214.37
1887	4,417,938,169	23,283,900	50,051 85	12,103,940	63,751	189.74
1888	4,041,904,514	20,457,935	46,600 77	11,073,875	56,049	197.57
1889	4,148,781,634	19,231,940	44,135 10	11,366,925	52,690	215.72
1890	5,249,760,226	34,615,830	56,239 99	14,382,901	67,536	212.96
1891	6,207,656,403	29,300,240	60,012 77	17,007,275	80,291	211.86
1892	6,659,925,650	34,505,875	71,805 25	18,246,371	94,278	193.00
1893	6,646,021,488	26,013,840	64,702 86	18,268,278	71,270	255.47
1894	6,589,492,142	26,892,145	54,902 85	18,053,403	73,485	245.07*
1895	6,039,680,218	21,178,879	40,221 85	18,190,902	58,024	313.5
1896	6,781,187,980	18,606,508	25,307 90	18,527,886	50,837	364.4

\* A larger percentage was allowed for slip in 1894 and 1895 than in other years.

SCHEDULE No. 7.  
QUANTITY OF WATER PUMPED AND QUANTITY CONSUMED DURING EACH MONTH OF 1896, WITH AMOUNT OF DAILY CONSUMPTION.

Month.	Total quantity pumped per month in Imperial Gallons.	Quantity stored in Reservoir at end of each month. Imperial Gallons.	Quantity consumed during each month. Imperial Gallons.	Average daily consumption of water. Imperial Gallons.	Tons. Lbs.	Average daily consumption of coal at Main Pumping Station.
Stored in Reservoir on 31st Dec., 1895.	.....	29,478,356	.....	.....	.....	.....
January .....	582,394,758	31,263,821	580,369,293	18,721,590	24	1,070
February .....	560,477,739	30,447,230	561,234,330	19,352,908	28	1,535
March .....	617,399,804	32,464,808	615,382,226	19,851,039	25	1,481
April .....	563,867,970	30,699,427	565,633,351	18,854,445	24	1,750
May .....	577,238,202	31,708,215	576,229,414	18,588,045	24	301
June .....	591,941,447	32,969,204	593,680,458	19,789,348	27	160
July .....	608,689,893	33,473,600	608,185,497	19,618,887	25	281
August .....	610,476,493	32,717,006	611,233,087	19,717,196	25	347
September .....	516,893,313	.....	549,610,319	18,320,343	22	1,932
October .....	561,693,300	30,951,624	530,741,676	17,120,639	23	431
November .....	477,832,744	32,464,808	476,319,560	15,877,318	23	1,898
December .....	509,282,317	31,708,215	510,638,910	16,452,868	23	1,477
Totals .....	6,781,187,980	.....	.....	.....	.....	.....
Averages .....	565,098,998	31,665,526	564,888,176	18,522,657	25	813

SCHEDULE No. 8.  
COMPARATIVE STATEMENT SHOWING INCREASE OF DEPARTMENT YEARLY, 1875 TO 1896 INCLUSIVE.

YEAR.	Average Daily Consumption of Water.	Population.	Average Daily Consumption of Water per Capita for all Purposes.	Total Number of House Ser- vices in use in each year.	Number of House Ser- vices put in each year.	Total Number of Hoists in use each year.	Total Number of Meters in use each year.	Total Number of Mains in use each year.	Average Pressure on Pumps.				
									No. 1, Worth- ington Engine.	No. 2, Worth- ington Engine.	No. 3, Inglis & Hunter.	No. 4, Blake Engine.	No. 5, Blake Engine.
1875	3,424,000	68,678	49.86	2,769	842	.....	.....	Miles. 49.810	88.10	.....	.....	.....	.....
1876	4,451,202	71,633	62.09	3,512	710	.....	.....	80.250	88.78	97.51	.....	.....	.....
1877	2,812,000	67,386	41.74	4,518	1,006	.....	.....	107.570	83.33	97.69	.....	.....	.....
1878	3,883,208	70,807	54.79	6,707	2,189	28	.....	110.240	89.65	96.64	.....	.....	.....
1879	4,411,245	73,813	59.76	8,568	1,861	47	.....	111.290	95.28	99.04	.....	.....	.....
1880	4,879,422	75,110	64.96	9,582	1,014	66	.....	113.312	98.22	99.52	.....	.....	.....
1881	5,234,056	76,934	68.03	12,236	2,654	79	.....	115.518	96.32	100.78	.....	.....	.....
1882	5,777,899	81,372	71.01	14,062	1,826	91	.....	116.145	94.85	101.66	.....	.....	.....
1883	7,698,511	91,796	83.87	16,276	1,766 { 448	109	.....	131.352	94.27	106.49	.....	.....	.....
1884	9,960,224	105,211	94.66	18,363	2,087	130	.....	138.301	99.146	107.036	.....	.....	.....
1885	9,706,127	111,800	86.82	20,707	2,344	140	195	143.257	98.84	106.45	103.88	.....	.....
1886	11,344,337	118,403	95.81	23,643	2,936	152	256	156.042	104.88	104.92	104.67	.....	.....
1887	12,060,610	126,169	95.59	26,893	3,315	176	332	165.894	.....	.....	.....	.....	.....
1888	11,029,784	166,809	66.36	29,883	3,635	174	897	182.625	93.41	92.36	94.57	.....	.....
1889	11,378,962	175,000	65.02	34,056	3,288	229	1,347	212.832	94.25	94.82	94.92	.....	.....
1890	14,434,722	185,000	78.02	36,192	2,191	229	1,479	229.257	92.83	93.55	93.58	.....	.....
1891	17,007,275	188,904	90.03	38,250	2,411	230	1,544	237.967	93.33	93.66	93.91	.....	.....
1892	18,246,371	188,904	96.59	39,401	1,200	288	1,535	242.561	.....	.....	.....	.....	.....
1893	18,208,278	188,904	96.38	39,927	526	300	1,600	244.964	94.18	94.18	94.18	96.37	.....
1894	18,036,881	188,904	95.58	40,326	399	258	1,580	245.478	94.88	94.88	94.88	95.24	95.24
1895	18,192,063	190,000	95.74	40,683	337	.....	1,500	.....	94.88	94.88	94.88	95.05	95.05
1896	18,527,836	195,987	94.53	40,951	313	230	1,553	249.627	94.5	94.5	94.5	95.4	95.4



SCHEDULE No. 9.

COMPARATIVE STATEMENT OF COAL CONSUMED AND WATER PUMPED BY MONTHS FOR THE YEARS 1895 AND 1896.

Month.	Engine No.	1895.				Engine No.	1896.			
		Water.		Coal.			Water.		Coal.	
		Quantity Pumped.	Total Pumped.	Quantity Consumed.	Total Consumption.		Quantity Pumped.	Total Quantity Pumped.	Quantity Consumed.	Total Consumption.
		Imp. Gals.Net.	Imp. Gals.Net.	Tons. Lbs.	Tons. Lbs.		Imp.Gals. Net.	Imp.Gals. Net.	Tons. Lbs.	Tons. Lbs.
January .....	1, 2 and 3 .....	195,238,922		625 1,825		1, 2 and 3 .....				
	4 and 5 .....	329,643,734		418 315		4 and 5 .....	582,394,758		800 250	
			524,902,656		1,044 140			582,394,758		800 250
February .....	1, 2 and 3 .....			99 1,500		1, 2 and 3 .....				
	4 and 5 .....	540,834,116		643 1,830		4 and 5 .....	560,477,739		743 1,820	
			540,834,116		743 1,330			560,477,739		743 1,820
March.....	1, 2 and 3 .....	71,748,970		300 1,700		1, 2 and 3 .....				
	4 and 5 .....	523,091,981		695 190		4 and 5 .....	617,399,804		806 1,450	
			594,840,951		935 1,890			617,399,804		806 1,450
April .....	1, 2 and 3 .....			54 00		1, 2 and 3 .....	60,771,752		187 1,350	
	4 and 5 .....	525,606,249		650 990		4 and 5 .....	503,096,218		649 100	
			525,606,249		704 990			503,096,218		836 1,450
May .....	1, 2 and 3 .....	8,811,248		127 220		1, 2 and 3 .....				
	4 and 5 .....	538,780,495		678 1,870		4 and 5 .....	577,238,202		749 360	
			547,591,743		806 90			577,238,202		749 360
June .....	1, 2 and 3 .....	213,545,487		610 380		1, 2 and 3 .....	17,363,508		57 1,170	
	4 and 5 .....	416,149,640		528 1,630		4 and 5 .....	577,577,939		724 825	
			631,695,127		1,139 10			594,941,447		781 1,995
July .....	1, 2 and 3 .....	8,137,767		85 89		1, 2 and 3 .....	21,623,636		59 260	
	4 and 5 .....	583,499,275		748 90		4 and 5 .....	587,066,257		757 743	
			591,637,042		833 179			608,689,893		816 1,003
August .....	1, 2 and 3 .....			10 510		1, 2 and 3 .....	816,662		5 00	
	4 and 5 .....	544,848,158		713 1,810		4 and 5 .....	609,659,831		775 780	
			544,848,158		724 320			610,476,493		780 780
September.....	1, 2 and 3 .....	26,596,517		93 1,450		1, 2 and 3 .....	771,040		15 1,760	
	4 and 5 .....	476,538,945		661 910		4 and 5 .....	516,119,273		681 220	
			503,135,462		755 360			516,893,313		696 1,980
October .....	1, 2 and 3 .....	199,765,943		607 30		1, 2 and 3 .....	2,632,338		22 1,010	
	4 and 5 .....	363,036,627		516 1,490		4 and 5 .....	559,060,962		751 1,055	
			562,802,570		1,123 1,520			561,693,300		773 2,065
November .....	1, 2 and 3 .....	178,424,364		530 1,540		1, 2 and 3 .....	13,258,546		92 1,040	
	4 and 5 .....	357,602,402		494 680		4 and 5 .....	464,574,198		653 715	
			536,026,766		1,025 220			477,832,744		745 1,755
December .....	1, 2 and 3 .....			6 00		1, 2 and 3 .....	14,207,978		45 415	
	4 and 5 .....	535,759,378		748 1,830		4 and 5 .....	495,074,339		725 1,185	
			535,759,378		754 1,830			509,282,317		770 1,600
Totals.....			6,639,680,218		10,589 879			6,781,187,980		9,303 508
Daily average .....			18,190,902		29 24			18,527,836		25 837



## SCHEDULE No. 11.

TOTAL LIST OF ALL MAINS LAID DURING THE YEAR 1896.

Street, Avenue, Etc.	Side of Street.	Location.	Feet.
<b>12-IN. SUB-MAINS:</b>			
Lake .....	North ....	From Bay to Yonge Street.....	515
Yonge .....	West ....	From Lake Street, north 59 feet (wharf) ..	74
			589
<b>6-IN. SUB-MAINS:</b>			
Alma Ave .....	North ....	From Gladstone Ave. east to old main ...	74
Bathurst .....	West ....	From n. w. cor. C. P. R. freight shed s. (blow out).	366
Collahie .....	South ....	From Beaconsfield Av. 72 ft. w. to old main	80
Crawford St.(exten.)	North ....	From Crawford to Sully Street .....	298½
Cross .....	North ....	From Beaconsfield Av. 126 ft. w. to old main	143
Defoe .....	North ....	Blow-out into sewer (w. line of Stanley Av.)	21
Dowling Ave.....	East ....	From Laburnan Av. s. to Lake (blow out).	282
Dufferin .....	East ....	At s. end 12-in. main (blow out into sewer)	16
Dunn Ave .....	East & W.	From Dominion Av. to a point 100 ft. south, thence to Lake (blow out).	199
Esplanade .....	South ....	From a point 130 ft. w. Berkeley St. across tracks.	121¾
Henderson Ave ..	North ....	From Clinton St. east to old hydrant ....	60½
" ..	North ....	From old hydrant west to Grace Street ..	161
McAlpine Ave....	South ....	From Davenport Rd. 130 ft. e. to old hyd't	161
McPherson Ave ..	North ....	From Poplar Pl'ns Rd. 430 " "	433
*Saunders Ave....	North ....	Extension to east end of street (blow out)..	30
*Wolsley .....	North ....	From Markham St. 100 ft. w. to hydrant.	120
Wellington Ave ..	North ....	From opposite Old Cattle Market, blow out into sewer in Stanley Park.	47
West Market.....	West ....	From old hydrant s. of tracks, 246 ft. s....	246
Yonge .....	West ....	From Woodlawn Ave. 152 ft. north .....	152
			3,104¾
<b>4-IN. SUB-MAINS:</b>			
Frederick St. Yard.	.....	Across the Esplanade into yard.....	190
Salisbury Ave ....	North ....	From Metcalfe St. east to old main .....	216
			406

\* For all mains laid up to end of 1895, see Appendix to City Engineer's Report for 1895.

## THE FOLLOWING MAINS OF THE OLD FURNISS WORKS ARE STILL USE.

Street, Avenue, etc.	Location.	Description.	Length in Feet.
Queen (east) .....	From Victoria to Jarvis Street .....	8-in. iron....	1,325
Queen (west) .....	" Yonge to Peter Street.....	" " ....	3,785
John .....	" Queen to King Street.....	8-in. cement..	1,240
Jarvis .....	" Queen to King Street.....	" iron ....	1,190
Gerrard .....	" Yonge to Jarvis Street .....	" " ....	1,660
Peter .....	" Front to Queen Street .....	" " ....	2,000
*Adelaide (east) ....	" Yonge to Victoria Street .....	6-in. iron....	340
*Berkeley .....	" King to Front Street .....	" " ....	300
*King (west).....	" Simcoe to Peter Street .....	" " ....	1,690
Queen (west).....	" Peter to Bathurst Street .....	" cement ..	2,800
*Total.....			16,335

\* These mains are included in the list of iron mains of the Department.

## SUMMARY OF MAINS.

*Mains throughout the City of all sizes and descriptions, including those on Streets, Government, Private and other Property, at the end of 1896.*

Size.	Length in Feet.
36 inch Mains.....	2,780
30 " " .....	11,292
24 " " .....	34,397
20 " " .....	3,953
12 " Sub-Mains .....	224,632 $\frac{3}{4}$
10 " " .....	14,195
8 " " .....	7,922
6 " " .....	956,481
4 " " .....	38,724
3 " " .....	9,736 $\frac{1}{2}$
2-in. and 1-in. small mains .....	3,993
Old iron and cement mains, 8 and 6 inches.....	14,000
Total in feet.....	1,318,103 $\frac{1}{4}$
Total in miles....	249.627

## SCHEDULE No. 12.

TOTAL LIST OF ALL HYDRANTS PLACED IN POSITION DURING THE YEAR 1896.

STREET, AVENUE, ETC.	Side of Street.	LOCATION.
Albert.....	North.....	14½ feet west of Albert Lane.
Allen.....	South.....	220 " west of Bolton Ave.
".....	".....	260 " east of Broadview Ave.
Bathurst.....	West.....	300 " south of C.P.R. freight sheds (Queen's Wharf.)
Carlaw.....	East.....	10½ " south of Queen Street east.
Dundas.....	North.....	North-west corner of Dundas Street (at bend.)
Elm.....	".....	206 feet west of Sherbourne Street.
Esplanade.....	South.....	130 " west of Berkeley Street across the railway tracks.)
Herrick.....	".....	6½ " west of Borden Street.
Jamcs.....	East.....	10 " north of Albert Street.
King.....	North.....	202 " west of Shaw Street.
Lake.....	".....	154½ " east of Bay Street.
".....	".....	352 " " "
Logan.....	East.....	13½ " north of Queen Street east.
Macpherson.....	North.....	123 " east of Poplar Plains Road.
Mark.....	".....	96 " east of River Street.
Metcalf.....	East.....	6 " north of Salisbury Ave.
Queen (west).....	South.....	30 " east of Gladstone Ave.
Queen (east).....	North.....	67 " east of Pape Ave.
Salisbury.....	South.....	163 " west of Sackville Street.
Sumach.....	West.....	Opposite south line of Funston Street.
Verral.....	East.....	10 feet north of Queen Street east
West Market.....	West.....	250 " south of Ry. tracks (S. of Esplanade.)
Yonge.....	".....	300 " north of Belmont Street.
".....	".....	69½ " north of Lake St. (Yonge St. Wharf.)

## HYDRANTS FIXED ON PRIVATE AND OTHER PROPERTY.

Frederick Street Yard—in yard.

Kemp's Tin Works—in yard.

NOTE—For all hydrants placed in position to end of 1895, see Appendix to City Engineer's Report for 1895.



## SUMMARY OF HYDRANTS.

Number of Hydrants set on streets at end of 1895 .....	2,859
"          "          " private and other property at end of 1895 .....	67
	<u>2,926</u>
There were removed from off the streets during 1896 .....	3
	<u>2,923</u>
Number of Hydrants additional set on streets during 1896 .....	25
"          "          " private or other property during 1896..	2
	<u>2,950</u>
Total number of Hydrants in use at end of 1896 .....	<u>2,950</u>

THE FOLLOWING HYDRANTS HAVE BEEN REMOVED OFF THE STREETS DURING 1896.

STREET, AVENUE, ETC.	Side of Street.	LOCATION.
Borden .....	West .....	South-west corner of Henrick Street.
James.....	East .....	South-east corner of Albert Street.
Ossington .....	West .....	North-west corner of Dundas Street.

## SCHEDULE No. 13.

TOTAL LIST OF ALL VALVES PLACED IN POSITION DURING THE YEAR 1896, AND SHOWING THE SIZE, POSITION, ETC.

Street, Avenue, etc.	Side of Street.	Location.
<b>12-IN. STOP VALVES.</b>		
Front .....	South ...	East line of Scott Street.
Lake .....	North ...	" " Bay Street.
Sherbourne .....	West ...	South " Isabella Street.
Wellesley .....	South ...	East " Parliament Street.
Wilton Ave .....	South ...	" " "
" .....	South ...	West " River Street.
<b>6-IN. STOP VALVES.</b>		
Alma Avenue .....	North ...	West line of Gladstone Avenue.
Lake .....	South ...	" " 1st lane west of the bridges.
Bathurst .....	West ...	8 feet south of last hydrant near Queen's Wharf (on blow out pipe).
Collahie .....	South ...	East line of Gladstone Avenue.
" .....	South ...	West " Beaconsfield Avenue.
Crawford St. exten..	North ...	" " Sully Street.
Cross .....	North ...	East " Gladstone Avenue.
" .....	North ...	West " Beaconsfield Avenue.
Defoe .....	North ...	" " Stanley Avenue (on blow out pipe).
Dovercourt Rd.....	West ...	South " Argyle Street.
Dowling Ave.....	East ...	" " Laburnam Avenue (on blow out pipe).
Dufferin.....	East ...	14 feet south of last hydrant (blow out off 12-in. main).
Dunn Ave .....	East ...	53 ft. s. of Dominion Avenue.
Esplanade.....	South ...	130 ft. w. of Berkeley St. (on main to hydrant s. of tracks).
" .....	South ...	Opposite w. line of Sherbourne St. (on branch to hydrant s. of tracks).
Henderson Ave ....	North ...	East line of Grace Street.
" .....	North ...	" " Clinton Street.
Huntley.. .....	East ...	North " Earl Street.
Lennox .....	North ...	East " Bathurst Street.
McAlpine Ave .....	South ...	" " Davenport Road.
Queen's Park Cres...	East ...	South " St. Alban's Street.
Richmond .....	South ...	West " Church Street.
Wellington .....	North ...	Opposite the "Old Cattle Market" (on blow out pipe).
Wilton Ave .....	North ...	West line of Church Street.
Wolsley .....	North ...	" " Markham Street.
" .....	South ...	East " "
<b>6-IN. CHECK VALVE.</b>		
Macpherson Ave ....	North ...	" " Poplar Plains Road.

## SCHEDULE No. 13—Continued.

Street, Avenue, etc.	Side of Street.	Location.
4-IN. STOP VALVES.		
Abbs .....	North ....	West line of Brock Avenue.
Cunningham Ave ..	South ....	" " "
Frederick St. Yard ..	.....	On Esplanade n. of tracks (in line of telegraph poles).
Henderson Ave .....	North ....	West line of Clinton Street.
Pine Terrace .....	North ....	" " Parliament Street.
Salisbury Ave .....	North ....	East " Metcalf Street.
" .....	North ....	West " Sackville Street.
Saunders Ave .....	North ....	East end of Street (on blow out pipe).
Seaforth Ave.....	North ....	West line of Brock Avenue.
3-IN. STOP VALVES.		
Abbs .....	North ....	West end of street (on blow out pipe).
Henderson Ave .....	North ....	" line of Manning Avenue.
Salisbury Ave .....	North ....	East " Sackville Street.

NOTE—For all valves placed in position to end of 1895, see Appendix to City Engineer's Report for 1895.

## SUMMARY OF VALVES ON STREETS, ETC., AT END OF 1896.

Size.	In use at end of 1895.	Put in during 1896.	Taken out during 1896.	Total at the end of 1895.
STOP VALVES.				
36 inch .....	4	....	....	4
30 " .....	8	....	....	8
24 " .....	15	....	....	15
20 " .....	2	....	....	2
12 " .....	379	6	....	385
10 " .....	7	....	....	7
9 " .....	11	....	....	11
8 " .....	11	....	....	11
6 " .....	1,573	26	....	1,599
4 " .....	49	9	....	58
3 " .....	23	3	....	26
Totals.....	2,082	44	....	2,126
CHECK VALVES.				
36 inch .....	5	....	....	5
30 " .....	4	....	....	4
24 " .....	1	....	....	1
20 " .....	1	....	....	1
12 " .....	12	....	....	12
6 " .....	43	1	....	44
Totals.....	66	1	....	67

## SCHEDULE No. 11.

STATEMENT OF HOUSE SERVICES LAID IN 1896.

Name of Street.	Size of Services.						
	$\frac{1}{2}$ -in.	-in.	$\frac{3}{4}$ -in.	1-in.	2-in.	4-in.	6 in.
Adelaide East.....			1				
Adelaide West .....	4		2	1	1		
Arthur .....	1						
Agnes .....	2						
Arnold Ave .....	1						
Addison Ave. ....	1						
Amelia .....	3						
Admiral Rd.....			1				
Albert .....	1						
Avenue Rd. ....	1						
Augusta Ave .....	2						
Bloor East .....		2					
Bloor West .....	2			3			
Brunswick Ave .....	6						
Baldwin .....	1						
Beachell .....		•••			1		
Brock Ave .....	2	•••					
Bulwer.. .....	2	•••					
Bathurst .....	5				1		
Bedford Rd.....	2	2					
Broadview Ave .....	1			3			
Bain Ave .....	1						
Blake Ave .....	1						
Berkeley .....	2						
Birtle Ave .....	2						
Beatty Ave ..	2			1			
Bond.....							
Bell .....					1		
Britain .....	1						
Bolton Ave .....	1						
Clinton .....	4						
Columbus.....	1						
Concord Ave .....	1						
Charles .....	1						
Chestnut .....	7						
Centre Ave .....	1						
Crawford .....	7						
Cumberland .....	1						
Curzon .....	1						
Cowan Ave .....	1						
Deleware Ave .....	1						
Dundas.....	4			1			
Dufferin .....	1		3		1		
Dowling Ave .....	3						
Davenport Rd.....	1						
D'Arcy .....	1						
Eastern Ave.....	3				1		
Elliott .....	1						
Elmslie Place .....			2				
Englewood Ave .....	2						

## HOUSE SERVICES LAID IN 1896—Continued.

Name of Street.	Size of Services.						
	$\frac{1}{2}$ -in.	$\frac{5}{8}$ -in.	$\frac{3}{4}$ -in.	1-in.	2-in.	4-in.	6-in.
Elgin Ave.....	1						
Esplanade East.....	1						
Edward .....	2						
East Market .....		1					
Empress Crescent.....	2						
Elm .....	1						
Euclid Ave .....	2						
Farley Ave .....	3						
Front East .....	3						
First Ave .....	1						
Frederick.....	4						
Grant .....	1						
Garnet Ave .....	3						
George .....	2						
Givens .....	2						
Gwynne Ave .....		1					
Hallam .....	2						
Howland .....	3						
Huron .....	3						
Hazleton Ave .....	2						
Harvard Ave .....	2						
Henderson Ave .....	2						
Hamilton .....	1						
Harrison .....				1			
Indian Rd .....	1						
Jarvis .....				2			
Jameson Ave .....	2						
James .....							1
John .....					1		
King West .....	12		1	1	1		
Kew Beach .....	1						
Leslie .....	3						
Lippincott .....	1						
Lombard .....	1			1			
Lake .....							
Lansdowne Ave .....	1						
Lamport Ave .....		1				1	
Lindsay Ave .....	1						
Marion .....	1						
Mission Ave.....	1						
Munro .....	2						
Maynard Ave .....	3						
Melville Ave .....	1						
Markham.....	2						
Madison Ave .....	1						
Mutual .....	3						
Margueretta .....	1						
Middleton Ave .....					1		
Manchester Ave.....	1						
McKenzie Ave.....			2				
North Drive .....		1					
North Lisgar .....	2						



## HOUSE SERVICES LAID IN 1896—Continued.

Name of Street.	Size of Services.						
	$\frac{1}{2}$ -in.	$\frac{3}{4}$ -in.	$\frac{1}{2}$ -in.	1-in.	2 in.	4-in.	6-in.
North Leopold .....	1						
Niagara .....	2						
Nanton Crescent .....		1					
Ontario.....	6						
Parliament .....	3	1					
Palmerston Ave.....	1						
Park Rd .....			1				
Pears Ave.....	1						
Portland .....			1				
Pearson Ave .....	2						
Perth Ave .....	2						
Peter.....				1			
Power .....				1			
Queen West.....	6			1	1		
Queen East.....	3						
Queen's Park .....	1	1		1			
Richmond East .....	1						
River.....	1						
Royce Ave .....	1				1		
Roncesvalles Ave .....		1					
Steiner .....	2						
St. Clarence Ave .....	1						
St. Helen's Ave .....	1						
Saulter .....	1						
Sydenham .....	2						
St. James.....	1						
Spadina Ave. ....	1						
Spadina Rd.....		2	1				
Sultan .....	1						
Summerhill Ave .....	1		1				
Sumach .....	3						
Smith .....	2						
South Drive.....			2				
Star Ave .....	1						
Sully .....	1						
Strachan Ave .....			1				
St. David's .....	1						
Strange.....				1			
Spencer Ave .....	1						
Seaton .....	1						
Simcoe .....	1						
St. Vincent .....	1						
Shaftesbury Ave .....	2						
Temperance .....					1		
University .....	1						
Wood.....	1						
Wallace Ave .....	1						
Wellesley Place .....		1					
Wellington West .....			1		1		
Waverley Rd .....	5						
Wilton Ave .....	2	1					
Westmoreland Ave .....	1						

HOUSE SERVICES LAID IN 1896—*Continued.*

Name of Street.	Size of Services.						
	$\frac{1}{2}$ -in.	$\frac{5}{8}$ -in.	$\frac{3}{4}$ -in.	1-in.	2-in.	4-in.	6-in.
Widmer .....	4	.....	.....	.....	.....	.....	.....
West Market .....	.....	.....	1	.....	.....	.....	.....
Wellington Ave .....	3	.....	.....	.....	.....	.....	.....
Wilson Ave .....	1	.....	.....	.....	.....	.....	.....
Walmer Rd.....	.....	3	.....	.....	.....	.....	.....
Water.....	6	.....	.....	.....	.....	.....	.....
Yonge .....	3	1	1	1	.....	.....	.....
Yorkville Ave .....	1	.....	.....	.....	.....	.....	.....
Yarmouth Rd....	1	.....	.....	.....	.....	.....	.....
Totals .....	259	20	22	20	13	1	1

# SCHEDULE No. 15.

METERS TAKEN OFF AND REPLACED AS FOLLOWS, 1896.

Month.	$\frac{3}{8}$ -inch.		$\frac{1}{2}$ -inch.		$\frac{5}{8}$ -inch.		$\frac{3}{4}$ -inch.		1-inch.		$1\frac{1}{2}$ -inch.		2-inch.		3-inch.		4-inch.		5-inch.		6-inch.		8-inch.		10-inch.		Totals.
	Off.	On.	Off.	On.	Off.	On.	Off.	On.	Off.	On.	Off.	Off.	Off.	On.	Off.	On.	Off.	On.	Off.	On.	Off.	On.	Off.	On.	Off.	On.	
January .....					15	11	7	8	1	...	...	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	45
February .....	1	1	2	1	6	6	7	5	2	2	1	...	1	...	1	1	...	1	...	...	...	...	...	...	...	...	38
March .....					14	14	3	3	3	3	...	...	2	3	6	5	3	2	...	2	...	...	...	...	...	...	63
April .....					2	2	...	...	4	2	...	...	9	8	11	10	2	2	...	1	...	...	...	...	...	...	53
May .....			2	2	18	15	2	3	...	...	...	...	1	1	1	1	2	...	...	2	...	...	...	...	...	...	50
June .....			1	3	9	8	12	10	5	4	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	53
July .....					7	8	4	4	3	2	...	...	1	1	...	...	1	2	1	1	...	...	...	...	...	...	35
August .....					10	11	10	7	4	3	...	...	...	1	...	1	...	...	...	1	...	...	...	...	...	...	48
September .....			1	1	19	18	7	7	5	4	...	...	...	...	1	2	...	...	...	...	...	...	...	...	...	...	65
October .....					14	13	3	2	1	2	...	...	3	1	...	1	...	1	...	1	...	...	...	...	...	...	42
November .....			1	...	15	16	5	3	2	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	44
December .....					6	5	5	4	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	26
Total .....	1	1	7	7	135	127	65	56	30	23	1	...	18	18	23	24	8	8	1	8	...	1	...	...	...	...	562



SCHEDULE No. 16.  
METERS IN USE ON DECEMBER 31ST, 1896.

	10-inch.	8-inch.	6-inch.	5-inch.	4-inch.	3-inch.	2-inch.	1½-inch.	1-inch.	¾-inch.	½-inch.	¼-inch.	3/16-inch.	Total.
Worthington.....					3	40	74	12	134	60	21			344
Kennedy .....			10		6	9	3							28
Crown.....					29	24	55		70	228	535		3	944
Siemens & Adam- son .....	1	5	7	9	15	30	22		35	45		50		219
Hersey .....							1		1		10			12
Thompson.....										1	1			2
Nash .....							1							1
Tridant .....										1		1		2
Torrent .....						1								1
	1	5	17	9	53	104	156	12	240	335	567	51	3	1,553

There are 90 hoists with indicators.



## SCHEDULE No. 17.

METERS REPAIRED WITHOUT REMOVAL FROM SERVICES, 1896.

Month.	$\frac{1}{4}$ -inch.	$\frac{1}{2}$ -inch.	$\frac{3}{4}$ -inch.	1-inch.	1 $\frac{1}{2}$ -inch.	2-inch.	3-inch.	4-inch.	5-inch.	6-inch.	Total.	New Boxes.	New Frames.
January .....	1	12	5	17	2	7	5	2	....	3	54	4	....
February .....		8	8	9	1	5	5	....	....	4	40	1	....
March .....		10	4	13	1	15	11	6	....	2	62	1	1
April .....	1	9	9	18	2	8	4	1	....	3	55	5	5
May .....		4	4	19	1	5	1	2	....	3	39	8	7
June .....		5	9	10	1	4	2	2	....	3	36	8	9
July .....		5	4	9	....	6	....	1	....	1	26	8	5
August .....	1	7	5	10	1	5	3	2	....	4	38	6	3
September .....		4	9	13	1	4	4	2	....	6	43	10	13
October .....		3	8	7	1	8	4	4	....	4	39	5	7
November .....		6	11	17	1	5	5	2	....	....	47	3	3
December .....		10	7	18	2	6	4	1	....	3	51	2	3
	3	83	83	160	14	78	48	25	....	36	530	61	56

## SCHEDULE No. 18.

SIZE AND NUMBER OF NEW METERS PLACED IN 1896.

$\frac{1}{4}$ -inch.	$\frac{1}{2}$ -inch.	$\frac{3}{4}$ -inch.	1-inch.	2-inch.	3-inch.	4-inch.	5-inch.	6-inch.	Total.
11	7	14	13	10	2	1	2	1	61

## SCHEDULE No. 19.

## MAINTENANCE OF DISTRIBUTION, 1896.

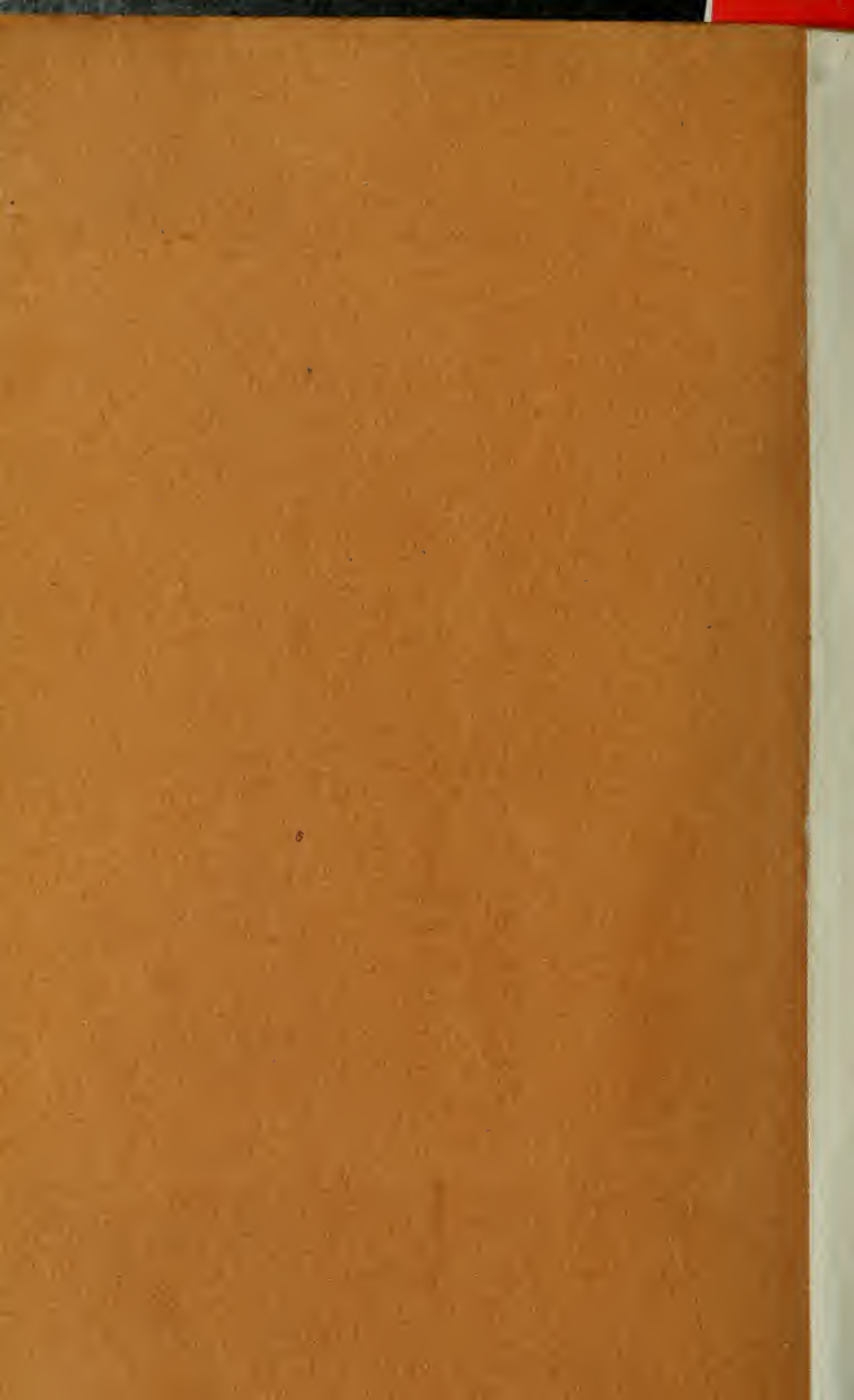
Month.	Services.						Hydrants		Leaks on Mains.								Total.			
	Repaired.	Blown Out.	Bursts Inside.	False Reports.	Boxes Dug Out.	Boxes Cleaned Out.	Cut Out of Main.	Cut Out of Main.	Moved.	36-inch.	24-inch.	20-inch.	12-inch.	10-inch.	9-inch.	8-inch.		6-inch.	4-inch.	
January .....	108	22	7	23	120	50	...	...	5	...	...	...	2	...	...	...	...	...	...	337
February .....	191	21	22	3	190	51	...	...	7	...	...	...	...	...	...	...	...	...	...	395
March .....	128	21	45	15	103	120	...	...	2	...	...	...	1	...	...	...	...	...	...	435
April .....	143	15	32	15	101	100	4	...	...	...	...	...	8	...	...	...	10	...	...	428
May .....	127	24	30	21	113	66	2	1	4	...	...	...	6	...	1	...	3	...	...	398
June .....	125	9	19	16	117	47	2	1	1	...	...	1	7	...	...	...	8	...	...	354
July .....	145	10	19	16	140	30	4	...	7	...	...	...	8	1	...	...	13	...	...	393
August .....	121	17	23	6	160	30	1	...	3	...	...	...	6	...	...	1	4	...	...	372
September .....	131	15	24	13	161	13	12	...	1	...	...	1	7	...	...	...	4	...	...	382
October .....	154	13	26	23	174	44	7	...	2	...	1	...	3	...	...	...	1	3	1	455
November .....	134	8	7	21	162	50	8	...	4	...	...	...	1	...	...	...	...	6	...	399
December .....	151	33	18	9	136	33	5	...	9	...	...	...	3	...	...	...	...	3	...	400
	1,568	208	272	181	1,677	634	45	45	2	45	1	1	2	52	1	1	3	51	1	4,748

## SCHEDULE No. 20.

THE FOLLOWING IS A COMPLETE LIST OF BLOW OUT VALVES FOR WASHING OUT MAINS INTO THE BAY AND SEWERS TO END OF 1896.

12-IN. VALVES.		
Lake .....	Foot of Lorne Street .....	Into the Bay.
Leslie .....	North line of Eastern Avenue.....	" sewer.
Summerhill Ave ....	To drain Reservoir off 24-inch .....	" creek.
6-IN. VALVES.		
Bathurst .....	South of C. P. R. freight sheds .....	" sewer.
Defoe .....	On west line of Stanley Avenue .....	" "
Dowling Ave.....	At the foot of .....	" Bay.
Dunn Ave .....	" .....	" "
Dufferin .....	" end of 12-inch main.....	" sewer.
Front .....	Opposite Morse's soap factory.....	" Don.
George .....	At the foot of .....	" Bay.
Parkdale P'mpg. Stn.	10-inch main.....	" "
" " "	Into Bay off 6-inch main .....	" "
Parliament .....	At the foot of .....	" sewer.
Princess .....	" .....	" Bay.
Simcoe .....	In G. T. R. tracks .....	" sewer.
Sherbourne .....	At the foot of .....	" Bay.
Summerhill Ave ....	At head of Ottawa Street bridge off 24-inch..	" sewer.
Wellington .....	In Stanley Park .....	" "
Yonge.....	At the foot of .....	" Bay.
" .....	Tannery Hollow, off 24-inch.....	" sewer.
" .....	" " 10-inch.....	" "
3-IN VALVES.		
Abbs .....	At west end of .....	" "
Elm Terrace.. ....	At east " .....	" "
Saunders Ave.....	" " .....	" "







TA Toronto. Dept. of Public  
27 Works  
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